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COLUMBIA UNIVERSITY QUARTERLY

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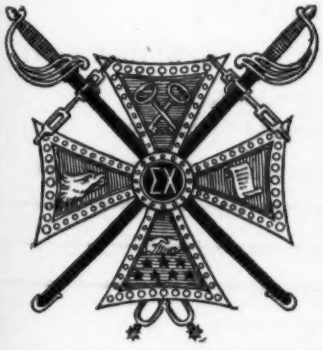

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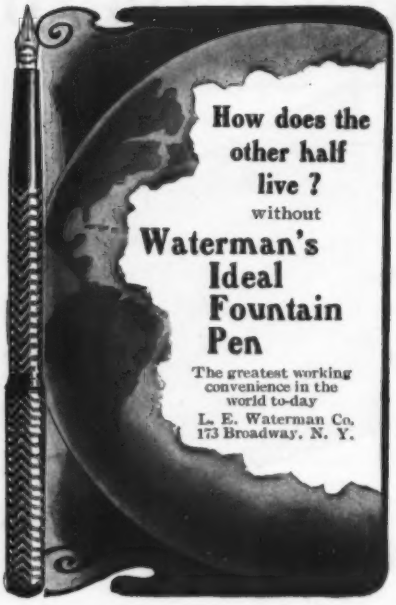
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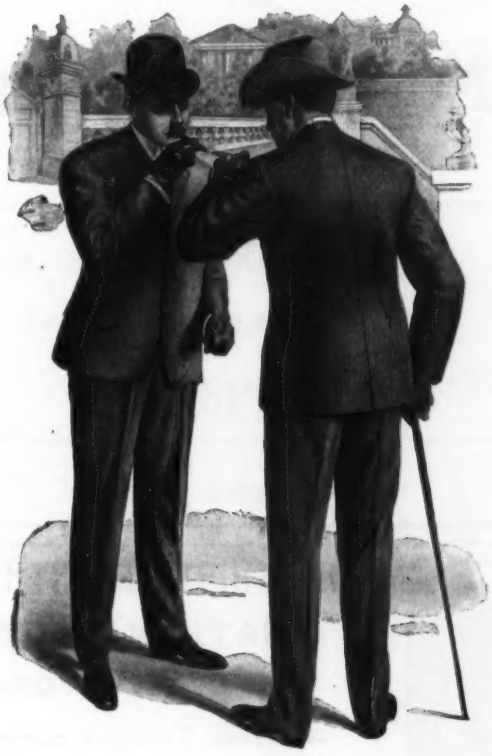

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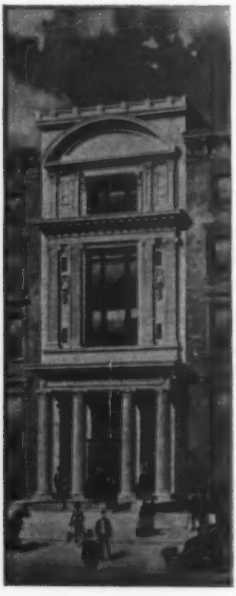

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COLUMBIA
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VOL. VI — JUNE, 1904 — No. 3

ROBERT R. LIVINGSTON AND THE LOUISIANA PURCHASE

IN this day of the abounding strength and prosperity of the United States, with a continental domain extending from ocean to ocean and from the Great Lakes to the Gulf of Mexico, and with a national power that has not inappropriately been pronounced "sovereign" on the American continents, it is difficult to appreciate the feelings of the administration of Jefferson, when, early in 1801, rumors began to prevail that France had acquired from Spain both Louisiana and the Floridas. The most vital interests of the United States—their commerce, their navigation, and their security against attack by savage as well as by civilized foes—seemed to be menaced. As a neighbor, Spain, because of the internal weakness of her government and the unaggressive character of her foreign policy, was not feared; but an apprehension had from the first been manifested by the United States as to possibility of being hemmed in by colonies of England and France. In the treaty of alliance of 1778, care had been taken to obtain from France an express renunciation of any of the British dominions in North America that might be taken during the war, as well as her express consent to their being confederated with the United States. This came to be regarded by the United States as the expression of a fixed policy. But there was yet another and

more definite reason why the rumored cession of Louisiana and the Floridas to France produced commotion. It seemed at once to put in jeopardy the continuance of the arrangement made less than six years before with Spain concerning the navigation of the Mississippi. The right freely to navigate that river, which was conceded by Spain to the United States by the treaty of October 27, 1895, was obtained only by the application of much pressure, under exceptional conditions; and, of even greater practical value than the naked right itself, was the additional grant by the same treaty to the citizens of the United States of the right to deposit their merchandise at New Orleans and thence to export it without payment of duty. Jefferson was therefore hardly extravagant when he declared that the cession of Louisiana and the Floridas by Spain to France would completely reverse all the political relations of the United States, and would render France, as the possessor of New Orleans, "our natural and habitual enemy."

The treaty by which the rumored cession was made was signed at St. Ildefonso, on October 1, 1800; but it was not published, and even its existence was officially denied. It did not embrace the Floridas, but it included the whole of the vast domain then known as Louisiana. When the earliest reports concerning it reached Washington, the first impulse of the administration, as the territory had not been actually transferred, was to endeavor to prevent its delivery; but the United States then had no minister at Paris. The choice of a proper representative was an object of the highest importance. Ability, experience, and high standing, all were requisite. In these circumstances, the administration turned to Robert R. Livingston. Livingston was then fifty-five years of age, and had had a distinguished career. Graduated at the age of eighteen from Kings College—the lineal ancestor of Columbia University—he afterwards studied law and was admitted to the bar, and for a time was a partner of John Jay. In 1773 he was appointed recorder of the City of New York. Chosen in 1776 a delegate to the Continental Congress, he was one of the committee of five appointed to draft a declaration of independence. In the same year he acted as a member of the provincial convention of New York, and was a member of the committee appointed to draw up a State constitu-

tion. In 1777 he became the first chancellor of the State of New York. When, in 1781, the Continental Congress established a Department of Foreign Affairs, Livingston was appointed its first incumbent, with the title of Secretary for Foreign Affairs, a post which he held from October 20, 1781, till June, 1783, when, to the great regret of Congress, formally expressed in appropriate resolutions, he relinquished it. In 1794, he declined the appointment of minister to France, preferring to continue in the discharge of his duties as chancellor, a position which he held till February, 1801, and in which he administered the oath of office to Washington on his inauguration as first President of the United States. Previously to his appointment by Jefferson as minister to France, he had declined the post of Secretary of the Navy.

Livingston set out on his mission early in October, 1801, and in order to hasten his departure he was furnished with passage on the frigate *Boston*. The vagueness of the information as to what had taken place was reflected in his instructions. Should he find that the transaction had not been completed, he was to exert himself to prevent, if possible, its consummation. If, on the other hand, he found that the cession had irrevocably been effected, he was to endeavor to induce France to make over to the United States the Floridas, if they were included in the cession, or at least West Florida, so as to give the United States a continuous stretch of territory on the eastern bank of the Mississippi.

Although no authentic official information could be obtained, Livingston became convinced, soon after his arrival in Paris, that the cession of Louisiana, if not of the Floridas, had been concluded. He was compelled, however, to work in the dark. From Talleyrand, who was then minister of foreign affairs, he could learn nothing. Nevertheless, acting upon the theory that it was desirable for the United States to secure a part, if it could not obtain all, of what had been ceded, he hinted to Talleyrand that Louisiana might be transferred by France to the United States as a means of paying the debts due by France to American citizens. Talleyrand replied, "None but spendthrifts satisfy their debts by selling their lands," and then, after a pause, blandly added, "but it is not ours to give." Livingston was not deceived by this evasion, but diligently

applied himself to his task. Nor did he confine his efforts to the cession of territory. Foreseeing that this might be unattainable, he also urged the French government to give an assurance that the transfer of the territory by Spain to France would not be permitted to effect the enjoyment by the United States of the right to navigate the Mississippi or to deposit and export merchandise at New Orleans.

Indefatigable in his exertions, and disgusted with Talleyrand's secrecy and duplicity, Livingston sought other means of accomplishing his ends than a correspondence with the French foreign office. He perceived the importance, indeed the necessity, of reaching the First Consul, Napoleon, whose dictatorial power he soon came to understand. "There never was," he declared, in one of his despatches to Madison, "a government in which less could be done by negotiation than here. There is no people, no legislature, no councilors. One man is everything. He seldom asks advice, and never hears it unasked. His ministers are mere clerks; and his legislature and councilors parade officers." In order to penetrate to this supreme ruler, Livingston sought the aid of various persons, and particularly of Joseph Bonaparte. Lucien Bonaparte, in his memoirs, had depicted a dramatic scene, with a plashing of water, a fainting valet, and other highly emotional details, in which Joseph is represented as acting with himself in stormy opposition to the cession of Louisiana by Napoleon to the United States. The cession was always unpopular in France, and it is not inconceivable that Lucien, who, when he wrote his memoirs, was still sharing with Joseph the burden of proscription and exile, thought that to acquit the living would work no injustice to the dead, whose responsibility was in any event unquestionable. However this may be, it is certain that Livingston prepared a series of memorials on the subject of Louisiana, urging the cession of a part of it to the United States; that at least some of these were addressed in reality, though not by name, to Joseph Bonaparte; and that Joseph consented that Livingston might address him thus. Joseph also assured Livingston that he had conversed on the subject of the memorials with Napoleon, who, as he found, had read them with attention, and who had declared that he had nothing more at heart than to be upon the best of terms with the United States.

On February 11, 1802, Talleyrand informed Livingston that he had been expressly instructed by the First Consul to give the most positive assurance that the treaties, which the United States had entered into with Spain relative to Louisiana, should be strictly observed. This assurance had barely been given, when a report reached Washington that the Spanish intendant at New Orleans had suspended the right of deposit. This action produced an intense excitement throughout the western country. To the inhabitants of the West the Mississippi was, as Madison declared, the Hudson, the Delaware, the Potomac, and all the navigable rivers of the Atlantic States formed into one stream. The produce exported through that channel had reached a large volume and was increasing by leaps and bounds. It was soon learned that the suspension of the right of deposit was unauthorized by the Spanish government, but the act of the intendant gave rise to energetic discussions in Congress; and a resolution was adopted by the House declaring that the stipulated rights of the United States in the Mississippi would be inviolably maintained. Some of the debates took place in open session, and were published in the press. Finally, on February 16, 1803, a resolution was offered in the Senate by Mr. Ross, of Pennsylvania, by which it was proposed to authorize the President, on grounds of national interest and safety, to take immediate possession of such places as might be necessary to assure to the United States the full and peaceable enjoyment of the use of the Mississippi, and to this end to employ the army and navy. The sum of five million dollars was to be appropriated to carry the resolution into effect.

The state of public feeling at this time was such that every branch of the government felt obliged to take measures not only to maintain existing rights but also if possible to enlarge and safeguard them. With this end in view, Jefferson decided to join James Monroe with Livingston in an extraordinary commission to treat with France, and with Charles Pinckney in a like commission to treat, if necessary, with Spain. He was careful, however, to declare, in his message to the Senate, his undiminished confidence in the ordinary representatives of the United States. He stated that the object of the extraordinary mission would be to procure

the cession of the island of New Orleans and of the Floridas, and the consequent establishment of the Mississippi as the boundary between the United States and Louisiana. March 2, 1803, instructions were given by Madison to Livingston and Monroe on this basis.

Meanwhile Livingston had, if possible, redoubled his exertions to bring the French government to terms; and he made skillful use of the excitement raised in the United States by the suspension of the right of deposit at New Orleans. His favorite plan, as he explained it in his various memorials, was that France should cede to the United States the island of New Orleans and all that part of Louisiana lying northward of the Arkansas river. For the part lying south of the Arkansas, she might found a capitol on the western bank of the Mississippi, which he affirmed to be better for that purpose than the eastern. He also urged that France should cede to the United States West Florida, if she had obtained the Floridas from Spain. These proposals he persistently pressed; and lest his representations might not reach the First Consul in their original force, he on one occasion adopted, with Talleyrand's consent, the expedient of addressing him directly. By this unusual measure, Livingston obtained an assurance that the debts due to American citizens would be paid. As to Louisiana, it was said that the First Consul would have preferred its being treated of in a "separate note"; and, apparently with a view to postpone a definite answer, and perhaps to escape from Livingston's insistent pressure, it was intimated that General Bernadotte would be sent on a special mission to the United States, in order to obtain the information which was deemed essential to a final decision. Livingston, however, was not to be put aside by such maneuvers. They served only to increase his determination. On Friday, the 8th of April, 1803, he received a copy of Senator Ross's resolution, and immediately sent it to Talleyrand, with an informal note expressing his fears that it would be carried into effect. He also gave a copy of the resolution to General Bernadotte, who took it immediately to Joseph Bonaparte. At the same time reports came from London of a movement there to organize an expedition of fifty thousand men to take New Orleans, in case of war with France.

On Monday, the 11th of April, Livingston held with Talleyrand a memorable and startling interview. The rupture of the peace of Amiens and the renewal of war between France and Great Britain were then believed to be inevitable, and Livingston was pressing upon Talleyrand the expediency of transferring New Orleans to the United States in order to prevent its falling into the hands of the British, when Talleyrand quietly asked him whether the United States "wished to have the whole of Louisiana." Livingston replied, no; that their wishes extended only to New Orleans and the Floridas; but that policy dictated that France should give the United States the country above the river Arkansas, in order to place a barrier between the French possessions and Canada. Talleyrand observed that if they gave New Orleans the rest would be of little value, and that he wished to know what the United States "would give for the whole." Livingston answered that it was a subject he had not thought of, but that he supposed we should not object to twenty million francs, provided the claims of our citizens were paid. Talleyrand pronounced this offer too low; but he also disclaimed having spoken of the matter by authority. In reality Napoleon had on the preceding day announced to two of his ministers his final resolution. The expedition to St. Domingo had miserably failed; colonial enterprises appeared to be no longer practicable; war with England was at hand, and it seemed wiser to sell colonies than to go down with them in disaster. In this predicament Napoleon decided to cede to the United States not only New Orleans, but the whole of Louisiana, and, only a few hours before the interview was held between Talleyrand and Livingston, had instructed Marbois, his minister of finance, to negotiate the sale. On Tuesday, the 12th of April, Livingston, as yet unaware that his cause was already practically won, had another conference with Talleyrand, and when the latter again resorted to dilatory tactics, excused his own persistency by saying that his government would think him "a very indolent negotiator." Talleyrand laughingly assured him that he would give him a certificate that he was "the most importunate he had yet met with."

Almost at the hour when this conversation was taking place, Monroe arrived in Paris. The next day he spent with Livingston,

engaged in consultation and in the examination of the correspondence. While they were at dinner, Livingston observed Marbois walking in the garden. Livingston invited him into the house, and after some conversation Marbois suggested that Livingston call upon him at his home at any time before eleven that night. He then went away, and, after Monroe departed, Livingston followed him. He soon learned from Marbois, with whom he was on terms of personal intimacy, that Napoleon had decided to dispose of the whole of Louisiana. Marbois represented that Napoleon on the préceding Sunday, at St. Cloud, had inquired as to the news from England. He had replied that he had seen in the London newspapers a proposal to raise an expedition to take New Orleans. Napoleon observed that he had seen it, too; and, after referring to the troubles that had been excited in America by the suspension of the deposit, said: "Well, you have the charge of the treasury; let them (the Americans) give you a hundred million francs, and pay their own claims, and take the whole country." Noting Livingston's expression of surprise at the price, Marbois eventually suggested that the United States should pay sixty million francs to the French government and assume the claims of their own citizens to the amount of twenty million more. Livingston declared that it was in vain to ask a thing so greatly beyond their means, but promised to consult with Monroe.

The American plenipotentiaries were thus confronted with a momentous question concerning which, in its vast extent, their instructions did not authorize them to treat; but they promptly and boldly assumed the responsibility. They proceeded to negotiate for the whole province, and in less than a month the treaty of cession was concluded. They brought themselves to accept Marbois' terms, excessive as they at first seemed. Directed to obtain an island, they secured an empire. Speaking to Monroe and Marbois in a prophetic strain, Livingston, when he had affixed his name to the treaty, exclaimed: "We have lived long, but this is the noblest work of our lives. . . . Today the United States take their place among the powers of the first rank. . . . The instrument we have signed will cause no tears to flow. It will prepare centuries of happiness for innumerable generations of the human race." Time

KING'S COLLEGE IN 1760

REPRODUCTION OF A PORTION OF AN OLD ENGRAVING FROM A DRAWING MADE BY A BRITISH OFFICER

has verified Livingston's vision of the beneficent results of what was then done; and as the purchase of Louisiana has contributed more than any other territorial acquisition to make the United States what it is today, he justly deserves for his preeminent part in that transaction a high place among the makers of the nation.

JOHN BASSETT MOORE

FROM THE KING'S FARM TO MORNINGSIDE

THE THREE SITES OF COLUMBIA

IT is a noticeable and, as compared with the history of other colleges, perhaps a unique circumstance, that Columbia has within her one hundred and fifty years of existence occupied three distinct and widely separated sites; but as the city has grown, the College has grown also and as the city has moved northward, the College has led rather than followed the march of metropolitan development.

THE FIRST SITE

First planted upon the King's Farm, and occupying two blocks between Murray and Barclay Streets, scarcely more than half a mile from the most southerly extremity of Manhattan Island, the College was then described as being "in the skirts of the city." The earliest view we have of King's College represents it as standing among fields and meadows, and in 1780 there were no buildings within several blocks. Upon this site, comprising about three acres and occupying an eminence from which it commanded an extensive and beautiful prospect of the Hudson River, a hundred and fifty yards distant, the corner stone of the first building was laid August 23, 1756. This stone which has happily been preserved bears the inscription:—

HVJVS COLLEGII, REGALIS DICTI, REGIO DIPLOMATE CONSTITVTI IN HONOREM DEI O.M. ATQ: IN ECCLESIÆ REIQ: PVBLICÆ EMOLVMENTVM, PRIMVM HVNC LAPIDEM POSVIT VIR PRÆCEL LENTISSIMVS, CAROLVS HARDY, EQVES AVRATVS, HVJVS PROVINCIÆ PRÆFECTVS DIGNISSIMVS. AVGTI. DIE 23°, AN. DOM. MDCCLVI.

While the building was in process of erection, the classes met in the school-house of Trinity Church; but in 1760 "the college buildings were so far completed that the officers and students began to lodge and mess therein." In honor of George II, and in accordance with the terms of the charter, the edifice was designated "King's College," and the original crown which surmounted it remains a witness to its royal foundation. The building, which was about one hundred and fifty feet in length and four stories in height, was constructed of brick and stucco; and it stood facing the south. It contained a chapel and a dining-hall, lecture-rooms and living-rooms for the president, the tutors and the students. The founders contemplated the erection of two other buildings of like proportions, so placed that the group should form three sides of a quadrangle fronting the river.

The occupancy by the College of its own building was accompanied by many evidences of popular interest and support; it was the recipient of numerous gifts in money, books and apparatus; it was regarded with pride by the city; and its commencements were among the most important public functions of the Province, but its prosperity was abruptly interrupted by the demand of the Committee of Safety in April, 1776, that the buildings be prepared for the reception of troops. Thus evicted by those who should have been foremost to give it their protection, the College was rendered homeless, its classes were dispersed, and its library was scattered. During the Revolution the buildings were used by both American and British troops as barracks and for hospital purposes. When they were restored to the College in 1784, little more than a ruin remained. Efforts were at once made to renovate the buildings; but it was not until 1820 that they were fully restored. It was in this year that wings were added to the easterly and westerly extremities and that the building assumed the appearance which it retained for the next forty years. Financial needs compelled the conversion into leasehold of a portion of the campus which was intersected by the opening of Park Place, but there still remained a green of considerable size, shaded by large sycamores, having an air of scholastic quiet and seclusion. The building is described as a picturesque old structure, unmistakably academic.

LIBRARY AND LAW SCHOOL OF COLUMBIA COLLEGE
MADISON AVENUE AND 49TH STREET

By 1840 Park Place had become the fashionable part of the town, and in 1854 the Trustees determined upon removal. The College continued in occupancy however, until May 7, 1857, when the last service was held in the old chapel; the ancient cornerstone was disinterred from its long resting-place to be borne to its new home; and the halls which had echoed to the march of history were abandoned forever.

The Second Site

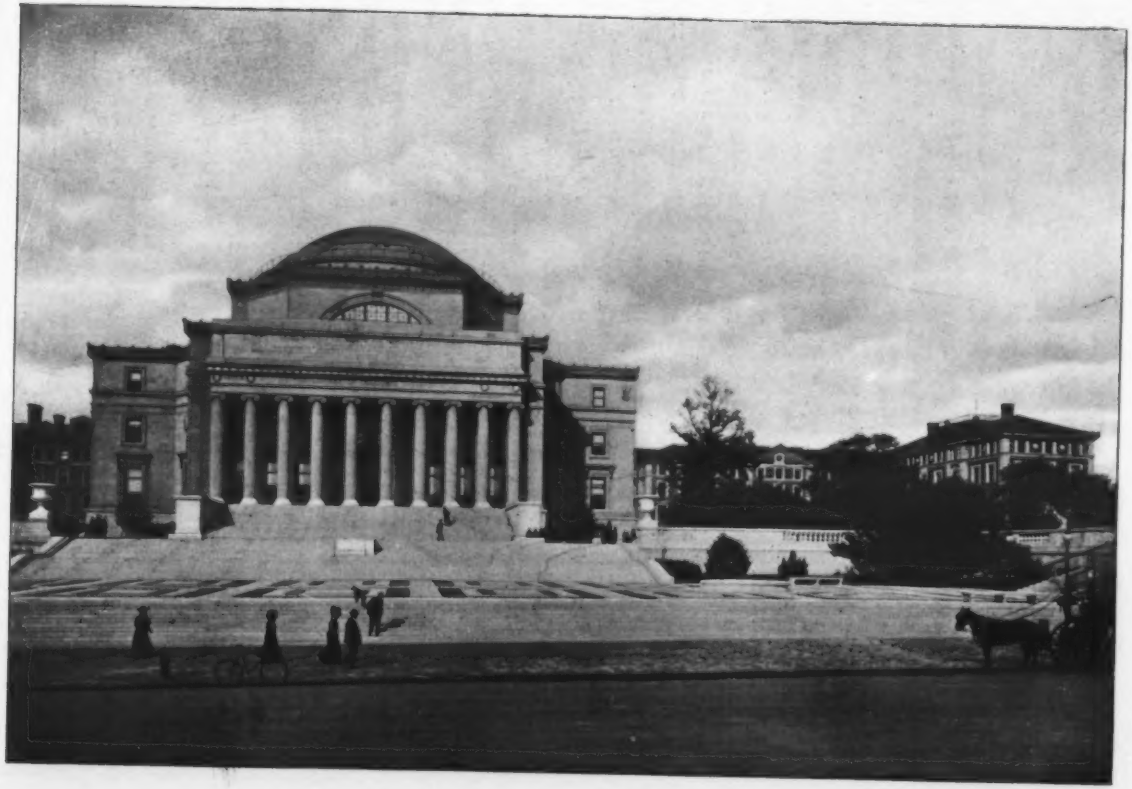
While the removal of the College was in contemplation, several sites were considered; and at one time it was so nearly decided to place the College on that portion of the Hosack Botanic Garden lying between 49th and 50th Streets, that plans for the new buildings were actually prepared. It was also suggested that the College should purchase a tract of a thousand acres in Westchester County, set apart a hundred acres for strictly college purposes, and develop the remainder as a university town; and it is interesting to speculate what the result might have been had this suggestion been adopted. Finally it was determined to buy twenty lots on the block bounded by 49th and 50th Streets, Madison and Fourth Avenues, containing about two acres and then occupied by the Institution for the Instruction of the Deaf and Dumb. The purchase was made upon favorable terms, and the action of the Trustees was influenced largely by the fact that the buildings of the Institution were available for the immediate use of the College, with but slight alterations. This site was, however, regarded as merely "temporary." The opening services were held in the Chapel of the "New College," as it was called, on May 12, 1857. The buildings consisted of a large well-proportioned edifice of brick and brown stucco, of classic design, standing on the high ground near Fiftieth Street, with adjacent buildings at either end, one of which served as a chapel, and the other as a residence for professors. President King and his family at first occupied rooms in the main building, which also furnished a number of class-rooms and lecture-rooms. The principal architectural feature of the central edifice was a lofty portico; and the group of buildings, shaded by a row of fine old trees on a beautiful lawn sloping southward, presented a pleasing and dignified appearance. "The present location of the College" is described

in the *Evening Post,* of May 11, 1857, as "a delightful one, and undesirable only on account of the distance uptown. . . . The site is on a commanding eminence, affording an extensive and pleasant view."

Subsequently, the Trustees purchased the lots comprising the remainder of the block, including a factory (afterwards used for the School of Mines). The buildings continued to be occupied with but little change until 1860, when the President's House was erected. In 1876 the west wing was removed. In 1877–1878 a large building for the School of Mines was erected on 50th Street; and in 1881–1882 the Library and Law School, and Hamilton Hall were erected, the former on 49th Street and the latter on Madison Avenue. These buildings were of brick and brown stone, of Gothic design, and of fine proportions. The Library in particular was a beautiful and imposing structure. But spacious as these new buildings were, comparatively speaking, they had been completely outgrown in 1890. Limitations of space prevented the erection of the additional structures needed, and in response to the demand for a wider field and greater opportunities, the Trustees decided upon a second removal.

The Third Site

The present site, like the first which the College occupied, has a history, beginning in 1701 when Jacob DeKey purchased the land from the City as a farm; but it was not until September, 1776, that it became memorable as the scene of the Battle of Harlem Heights. The "buckwheat field on the top of a high hill" made famous by Knowlton's Rangers, in the fight in which Colonel Knowlton fell, the first battle in which the American troops faced the British and routed them, is now the site of the University. The College which a traveller of a hundred years ago described as the most beautifully situated in the world, once more looks forth upon the waters of the Hudson, but from a higher vantage ground and with the broader vision of the University. To the natural beauty of the situation, which fits it so preeminently to be the home of learning, is added the element of historic interest, associating the University of today still more inseparably with the College of the Revolution. The



COLUMBIA UNIVERSITY, MORNINGSIDE HEIGHTS, 1904

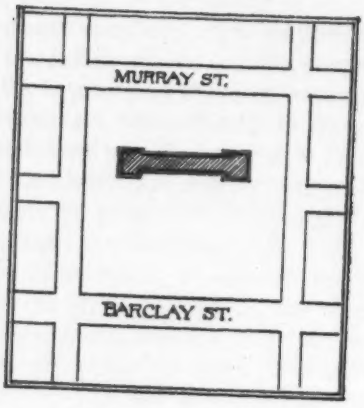
land upon which the University buildings are erected comprises six city blocks, or a little more than twenty-six acres, exclusive of that occupied by Barnard College and Teachers College. It is divided by 116th Street, the four blocks to the north having been purchased in 1892 and the two blocks to the South (known as "South Field") in 1903. In the distribution of the buildings the entire area is treated as a unit; a harmony of plan and design has been preserved throughout; and the natural elevation of the land, which is the highest on Manhattan Island, has been utilized to secure what George William Curtis described as the "crowning opportunity for the old College to become the magnificent and adequate representative of the just aspirations of the city for an institution which is symbolical of the higher interests of every great and prosperous community."

Realizing that an opportunity so great as that afforded by the new site carried with it a great responsibility, and that the situation and design of the buildings first erected must to a great extent determine the character of all subsequent structures, the Trustees devoted three years, with the assistance of the best professional advice, to the study of a general plan which should utilize the possibilities of the land to the utmost with the fullest regard for economic, educational and artistic considerations. The probable needs of the University in the far future quite as much as its immediate necessities were weighed; and a comprehensive plan and a general scheme of architectural treatment were determined upon before the plans of any single building were discussed. As a consequence the buildings first erected became parts of a well-defined scheme so devised as to permit of the erection of a much larger number of additional buildings, not only without detriment but to the advantage of the group as a whole; and it is not too much to say that the capacity of the site can be multiplied as least threefold as the requirements of the University increase, and as means are provided for more lecture-halls and laboratories.

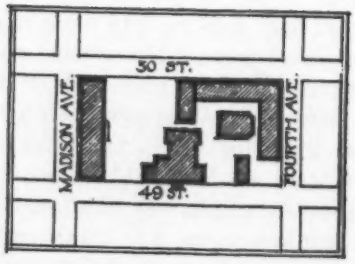
The general plan so adopted consists primarily of a great quadrangle comprising about ten acres occupying the highest portion of the grounds, the central feature of which is the Library, a building purely classic in style, in the form of a Greek cross, sur-

mounted by a stone dome, approached from 116th Street by a spacious court (reached by broad flights of steps), which dominates the surrounding buildings by the beauty of its proportions and the dignity of its massive simplicity. To the northeast and northwest of the Library are Schermerhorn and Fayerweather Halls, Havemeyer Hall and the Engineering Building, forming the two northerly angles of the quadrangle, while directly to the north is University Hall (not yet completed). To the west is Earl Hall, "provided for the use of the students, that religion may go hand in hand with learning and character grow with knowledge"; and to the east the University Chapel is now about to be built. Two additional halls still remain to be erected at each of the southerly angles in order to complete the great quadrangle, and when these have been built there will still remain sites for four interior buildings, which when constructed will divide the large quadrangle into smaller but still spacious courts. To the northward of the entire group of buildings thus indicated lies the green, in which there is still preserved a grove of oaks and chestnuts, one of the natural beauties of the site; this portion of the land consisting of about seven acres is being reserved for the unforeseen needs of the future.

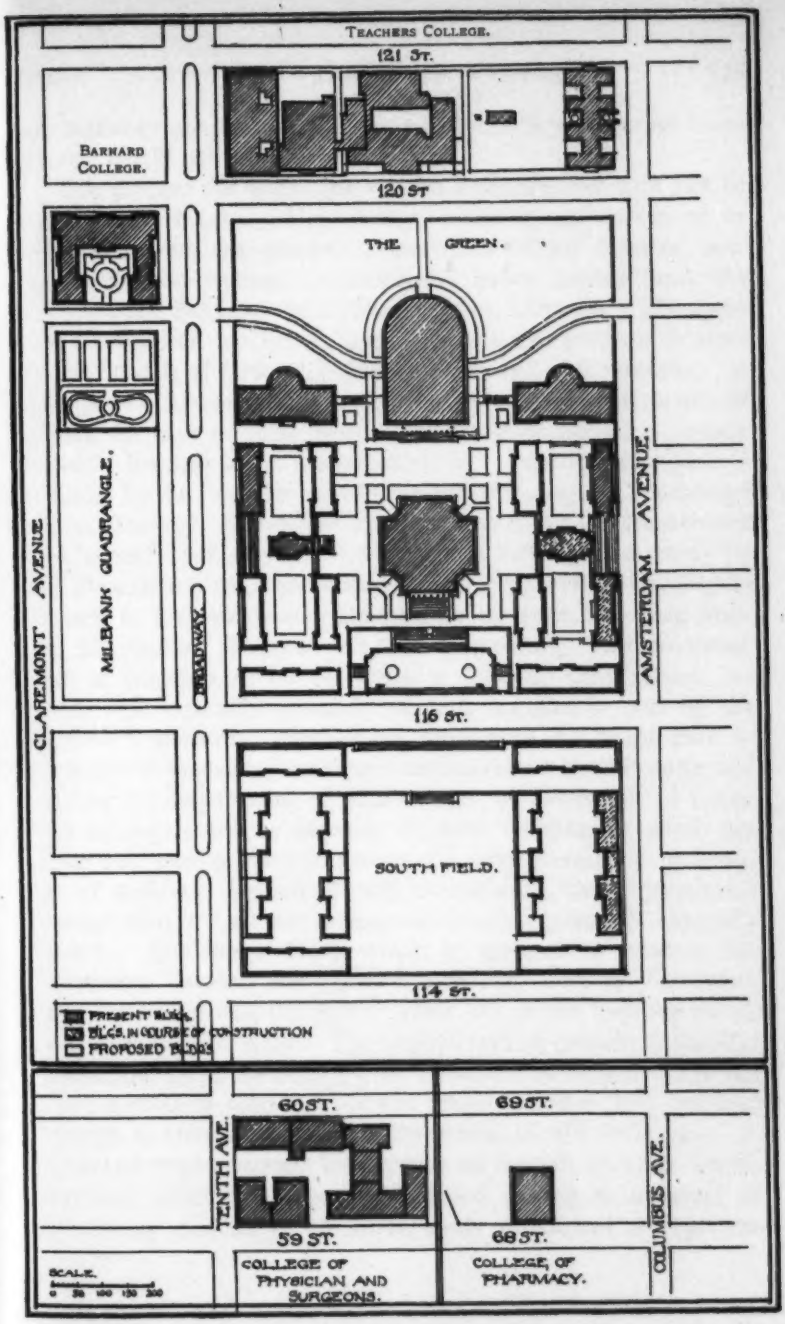
Spacious as was the site first acquired by the University on Morningside Heights it has nevertheless seemed wise (and the decision has been sustained by unanimous public opinion), to purchase an additional tract of land on the southerly side of 116th Street, consisting of two blocks (or about nine acres), thus enlarging the campus about fifty per cent., and furnishing space for a large number of dormitories and for such further academic buildings as may be needed in the future. For this additional land, known as South Field, a general plan has been adopted, providing for two quadrangles each consisting of six buildings, one on the easterly and another on the westerly side of the Field, leaving the central portion open and available for athletic purposes until demanded by educational necessities. It is anticipated that most of the buildings on South Field will be used as residences for students; and two of them, Hartley Hall and one other, are to be commenced this spring. The total cost of the land and buildings occupied by the University, with their equipment was nine million dollars, and



KING'S COLLEGE, 1760



COLUMBIA COLLEGE, 1890



COLUMBIA UNIVERSITY, 1904

the buildings about to be commenced will involve the expenditure of very nearly one million dollars more.

The purpose for which the various structures are used can be indicated but briefly. The Library, which in anticipation of its probable growth was planned to contain a million volumes, now houses 350,000 volumes, including the Avery Architectural, the Phoenix, and the Law and Political Science Libraries. The space not yet required for library and administrative purposes is used by the Schools of Law, of Political Science and of Philosophy. It is expected, however, that a separate building will ultimately be erected for each of these schools, and the Law School is already urgently needing larger accommodations. Schermerhorn Hall is occupied by the Departments of Geology, of Botany, of Psychology and of Zoology; Havemeyer Hall is tenanted by the Department of Chemistry and also (until a Fine Arts building is erected) by the Department of Architecture. The Engineering building is devoted to the departments indicated by its name, including Mining, Mechanical, Electrical and Civil Engineering. Fayerweather Hall is largely used by the Phoenix Physical Laboratories, for which it is especially planned; but it is occupied in part by the English Department, pending the erection of a College Hall in place of the temporary building now designated by that name and used by the Department of Mathematics, of Greek and of Latin. The aggregate seating capacity of these buildings is 4200, but while they were planned to permit of a large increase in the number of students, they are already overcrowded, and a permanent College Hall for all the undergraduate departments is especially needed. University Hall, which is planned to contain the University Theater, the Alumni Memorial Hall or Commons, the Gymnasium and the Power Plant has as yet been completed only up to the first story. The finished portion contains a spacious gymnasium and a swimming-pool, a number of lecture-rooms and a power-plant of 5000 horse-power, which furnishes light and heat through a system of subways connecting all the buildings. A transverse road intersects the grounds on the axis of 119th Street, affording access to the power-plant and serving as a means of introducing supplies of all kinds, easily distributed through the

subway system already referred to. Earl Hall, situated on the west of the Library, contains an assembly hall, a reading-room and a number of smaller rooms which are used for the daily chapel service, for public meetings and lectures, and for meetings of the debating, literary and religious societies and other student organizations. It is a center for the social life of the students, the average daily attendance being over six hundred. The corresponding site on the east of the Library has been reserved for a chapel, funds for which have recently been provided, and which will be completed during the coming year. The dormitories, which are also in process of erection (on South Field) will supply a long and deeply felt want at Columbia,—or at least they will begin to supply it, for the two buildings now in progress are regarded only as the first of a series. Each of these new dormitories will be entered, from the quadrangle, through a vestibule leading into a social hall, which will serve as a gathering place for the students living in the building. Each of the nine floors will be divided into thirty rooms of varying sizes, so arranged that they can be occupied singly or in sets; and each of the buildings, which will be of fire-proof construction, will be provided with two elevators and three separate stairways. While differing essentially both in size and arrangement from any dormitories which have been built elsewhere, it is believed that these buildings as planned are especially adapted to the situation and to the needs of the students, and that they will enable the University to provide residences for at least five hundred students, at moderate rentals.

In all the buildings thus far erected, uniformity of style and proportion has been preserved; and it is intended (so far as precedent and example can make it certain) that the same degree of harmony shall characterize all future buildings. The question of architectural treatment received from the Trustees at the inception of their undertaking no less careful consideration than the general plan. Certain requirements were obvious and imperative; the style to be adopted must satisfy the varied practical needs of the University, and be capable of affording the best possible light and ventilation; it must be flexible enough to permit variety in the treatment of a large number of buildings, while securing general

harmony of effect; it must be consistent with the economical use of space and appropriate to the municipal character of the situation: it should be the style in which the greatest number of architects could express themselves to the best advantage; and it should be the style most conducive to an artistic and imposing architectural effect and most likely to appeal to the taste and judgment of the educated public. The necessity of meeting these requirements led to the selection of the classic in preference to the Gothic type; and a classic style embodying the principles of the early masters of the Renaissance was adopted. It was also determined that a uniformity of proportion should be maintained, and that all the buildings should be constructed either of Indiana limestone, or of a combination of that stone with overburned brick. Given these limitations as safeguards against the invasion of buildings of an incongruous character, it may safely be assumed that in the many decades, if not centuries, which may elapse before the entire plan will be completed, individual taste will find opportunities for expression which will prevent monotony or sameness, and it is perhaps not too much to hope that Morningside may yet justify its appellation of the "Akropolis," and witness the realization of the words of Curtis: "Athens has no loftier names than the Garden, the Porch, the Academy. What they were to the city of the violet crown, a prompt and splendid generosity may make the College of the great Revolutionary patriots of New York to the city of their children."

JOHN B. PINE

THE SCHOOL OF MINES

IN June the School of Mines of Columbia University completes its fortieth academic year. In comparison with the mining schools of the old world it is a young institution. It is, nevertheless, the pioneer mining school of this country, and from the beginning, by virtue of its seniority has exercised much influence on the development of mining education here. It seems fitting, therefore, that we should at this time give to the readers of the QUARTERLY a review of the work accomplished in these four decades,

with a brief statement of the purpose of the school and an outline of its characteristic features at the present time.

The School of Mines owes its existence to the efforts of the late Professor Thomas Egleston, who submitted in 1863 a plan of organization which met with the approval and support of the Trustees of Columbia College. In December 1863 Mr. Egleston was appointed as the first professor in the proposed School of Mines and was entrusted with the agreeable duty of carrying his plans into execution. Professor Egleston succeeded in interesting Professors Charles F. Chandler, Francis L. Vinton and John S. Newberry in the project and Professors William G. Peck, Charles A. Joy and J. Howard Van Amringe of Columbia College were assigned to seats in the new faculty. Of these seven professors five had studied abroad and were familiar with the educational traditions of the universities of the old world. Professors Egleston and Vinton had been students of the *Ecole des Mines* of Paris. Professors Vinton and Peck, and later Professor William P. Trowbridge, were distinguished graduates of West Point. Most if not all of the new faculty were experienced instructors, and from the first their deliberations were influenced and guided by the distinguished educator and scientific scholar, President Frederick A. P. Barnard. The influence of these founders of the School of Mines is to be seen in most of the principal features of the institution as it exists today. To the thorough mathematical foundation for engineering studies, characteristic of West Point, has been added the logical arrangement and systematic development of subjects of the *Ecole des Mines,* and the thoroughness and scientific accuracy of the German university. From the beginning the School of Mines has been cosmopolitan, reflecting the character of the metropolis in which it is located, and has derived its inspirations from the best educational traditions of the old world and the new. This character has been maintained throughout its history; and today, while the faculty is largely composed of alumni of Columbia, as is natural, more than one third of its members are graduates of other colleges and professional schools, and over one half have been at some time connected with other institutions as professors or students.

The School of Mines is fortunate in its location and environment, as it draws its students from the section of the country possessing greatest educational opportunities. This has enabled it to maintain high requirements for admission, and to exact a high standard of accomplishment from its students. The excellent material with which it has had to deal, as well as the quality of instruction given, is shown in the large degree of professional success attained by graduates of the School of Mines, who are now in charge of important and successful mines and metallurgical establishments in all parts of North and South America, from New Brunswick and Alaska to Chili and Peru, and in Asia, Africa and Australia.

The alumni of the School of Mines have also directly and indirectly exerted much influence on the development and educational policy of the institution, in which they have at all times exhibited most loyal and hearty interest.

The main purpose of the School of Mines is to train men to undertake the development of mineral properties, and to manage mines and metallurgical works. This training must be a broad one, as the duties of the mining engineer involve application of the sciences of mineralogy, petrology, and geology in both the surface and underground exploration of mineral deposits; of civil, mechanical and electrical engineering in the construction and operation of mine plant and mining machinery; and of ore dressing, milling, and metallurgy in the treatment of the products of the mine. These subjects require that the student shall be well grounded in mathematics, physics, mechanics and chemistry, and that in each the instruction shall be thorough and complete. The course is, therefore, a very broad one. It is manifestly impossible in an article of this character to go into many details of the scheme of instruction, but some of its salient features may be emphasized.

Great stress is laid upon laboratory and field work training. The chemical laboratories for qualitative and quantitative analysis and assaying, the mineralogical and geological laboratories, the physical laboratories, and the drafting rooms are among the finest in the country. Laboratory instruction in chemistry and assaying extends through three years, in drafting through all four years.

Laboratory instruction in mineralogy and geology extends through three or four years, and includes half a year's work with the microscope on thin sections of minerals and rocks. This not only fits the student for subsequent studies, in his professional practice, of the phenomena of ore deposition, but also furnishes an admirable introduction to the microscopic study of metals and alloys, which is included in the required work in the metallurgical laboratory.

An important feature of the laboratory instruction in the School of Mines is the prominence given to work in the engineering, mining, and metallurgical laboratories. In these the student continues the work begun in the chemical and physical laboratories, and is given opportunity for the experimental demonstration of the physical, mechanical or chemical laws and general fundamental principles underlying any given branch of engineering. These laboratories are also equipped to train the student in the making of scientific tests of engineering materials, and working tests of machines and processes of ore treatment; thus preparing him, as far as it is possible in the school, for work that he will be called upon to do as an engineer.

Among these are the testing laboratories for determining the strength and other physical qualities of engineering materials; the mechanical laboratories, equipped with large and small steam engines, gas and petroleum engines, steam turbines, air compressors, pumps, and auxiliary apparatus; the electrical laboratories, with direct and alternating current generators, motors, dynamos, and transformers, arc and incandescent lighting apparatus; the metallurgical laboratories, equipped with large and small furnaces, heated by fuel, gas, and electric current, and with apparatus for illustrating lixivation, precipitation, chlorination, amalgamation, and other chemical processes; and finally the mining laboratories, equipped with small and large sized crushing, screening and sampling apparatus, and large and small concentrating machines of different types.

All these laboratories are furnished with the necessary instruments of precision for making tests, and the mining students are required to perform for themselves in each laboratory a series of experiments designed to supplement the class room and field instruc-

tion and give them the training of hand and eye required for successful laboratory manipulation.

Practical instruction in summer schools is developed at Columbia to an extent not found elsewhere. Prominent among these is the Summer School of Surveying, which is located at Morris, Litchfield County, Connecticut, where the University has recently purchased several farms aggregating six hundred acres, and has established a permanent camp capable of accommodating two hundred students each summer. The summer school has a large outfit of surveying instruments, so that the classes may be divided into small squads, usually not over three men, resulting in a maximum of individual work and personal training. Each mining student has fifteen weeks field work, divided between the three summer vacations, in which time he executes a large number of surveys, and acquires a high degree of skill in the adjustment and use of surveying instruments, and in the control of topographical and engineering surveys, and the computations and mapping incident thereto. The surveying school is unique in the high degree of accuracy required in all surveying work. In the earlier surveys executed by each student, all the work is done upon areas covered with fixed monuments, the relative position and height of each of which is accurately known. The students' work is thus checked on every individual measurement of distance, direction, and elevation, and he is forced to use the greatest care, and to employ only correct methods of work, from the very beginning. As a result of this system the graduates of the School of Mines are in all cases skilled and accurate in the use of surveying instruments.

The Summer School of Practical Mining is another important feature of instruction which originated at Columbia twenty-seven years ago and which since has been added to the curriculum of many other mining schools. This school of observation has the same relation to the study of mining as clinical instruction and hospital practice have to the study of medicine and surgery. The programme at the summer school includes detailed studies of the operations of mining, and of mine equipment, underground and on the surface, and of the problems of mine organization and administration. The work is done at some important mine selected

for the purpose. Special subjects of study are assigned each day to the students and they are put in the charge of skilled miners or mine officials, in small squads of two or three men, for the accomplishment of this assigned work. During the day they are frequently visited by competent instructors, and at night they are expected to hand in detailed notes and sketches of the subject assigned for the day's work, which notes are closely scrutinized and criticised by the instructors in charge. In this and similar ways it is attempted to develop the student's powers of observation and to encourage him in habits of careful and critical study, and above all in the habit of making intelligent notes and sketches of a character likely to be useful to him afterwards. Incidentally the student accumulates much valuable information as to the geological occurrence of minerals, and regarding the details of mining practice and the problems of mine administration in the mining region visited, which add much to the value of the lectures on mining and allied subjects when he returns to the School of Mines for the work of his fourth or final year. In the words of one of the professors " the students seem five years older when they come back to us in the fall after attendance at one of these summer schools." As far as possible the summer schools have been held in the older and better developed mining regions, that the students may have the advantage of studying the best and most approved practice. Summer sessions have been held in the bituminous and anthracite mines of Pennsylvania, at iron mines in New Jersey, New York, and Michigan, at copper mines in Michigan and Montana, at lead mines in Missouri, at mines of gold and silver in Colorado and Utah. During the summer of 1904, through the liberality of Mr. George Crocker, the summer school is to be held under most advantageous conditions at a mine in Colorado to be leased for the purpose, and operated primarily for the instruction of the students. This novel experiment, if successful, should result in a notable advance in the standards of mining education in this country.

Summer classes in geology are held each year for the benefit of students of mining, at which the students are instructed in methods of geological field work and are required to construct maps and geological sections from their notes.

Summer classes in metallurgy are likewise held each summer at important metallurgical works in different parts of the country for the practical study of the metallurgy of iron, steel, copper, lead, zinc and gold and silver.

While much time is thus given to practical training in the laboratories, in the field, and at the mines and metallurgical establishments, great care is taken to subordinate this instruction to the regular classroom work, and especially in subjects which are fundamental. In all such subjects a high standard of accomplishment is rigorously maintained.

The subjects for the graduation theses are assigned in the summer preceding the final year of the mining course. These theses are made a part of the regular course of instruction and constitute a feature of great educational value. The subject given in each case is the problem of the opening and development of a mine, which is supposed to be located in some well-known mining district, and for which certain definite conditions as to size and character of ore body, amount of water to be pumped, and quantity of ore to be mined, are assumed. During the summer the student visits the assigned region and studies on the spot the conditions under which mining is there conducted and obtains data for his thesis work. During the winter he decides upon the proper methods for opening, developing, and working the property, and makes estimates of the plant, machinery and capital required, the probable cost of working, and the profits obtainable. In addition to this he is required to work out in detail certain portions of the proposed mine plant, and to prepare a series of working drawings, bills of materials and specifications therefor, computing carefully the strength of all the parts. This work, and the preparation of the thesis, is done under the supervision of competent instructors, and constitutes both a review, and a series of practical applications, of the preparatory studies of previous years. It enables the students to discover and remedy weak places in their professional training, and gives them at the same time some degree of confidence in their ability to work out similar problems later.

It is believed that the scheme of instruction developed at the School of Mines during the forty years of its usefulness accom-

plishes the following important educational results for the students completing the course.

1. A broad and thorough fundamental training in mathematics and science.

2. An engineering education of a high order.

3. An exceptionally complete training of hand and eye in laboratory and field work.

4. The special professional instruction in geology, mining, and metallurgy necessary for the mining or metallurgical engineer.

That the education offered preserves a fair balance between the exacting requirements above outlined seems to be indicated by the professional success of the School of Mines graduates and by the large and increasing number of students coming to Columbia from all parts of the country, and from abroad.

HENRY S. MUNROE

THE LIBRARY: EVERYBODY'S WORKSHOP

THE rapid development of the science and art of education during thirty years, has made necessary an enlarged educational vocabulary. Such words and phrases as "research," "investigation," "sources," "laboratory methods," "original work," as well as the multiplication of the more common technical terms ending in "ic," "al," and "ology"—all these and more indicate the change which has come in both theory and practice.

In no one direction is this change more noticeable than in the new value placed upon educational equipment, instruction apparatus, the innumerable "aids" and "helps" which are so freely used in every grade of work—from kindergarten to graduate study. The earlier recognition of all this came, naturally enough, in the lower grades, and the first use was to stimulate and quicken immature minds. Recognition and use were scant enough at first: but there is full measure of practical appreciation now all along the line, and that classroom—even that of the classics—is but poorly equipped which has not such illustrative apparatus as maps, charts, photographs and lantern: while skill and ingenuity and resource-

fulness and expenditure are lavished upon science laboratories without stint or appreciable limit.

All this has exerted a very marked influence upon the policy and management of the college and university libraries. In the earlier day, and that not so remarkably remote, the place and value of these libraries was understood after a fashion, but not at all after the present fashion. There was little required collateral reading, students were left almost entirely to their own choice (a freedom which is not without its value), the libraries were poorly classified and arranged, the administration was not remarkable for its efficiency, the collections were accessible on certain days of the week only and quite often only on certain hours of those days, and there was little to attract and much to repell the investigator. All this occurred in a period which perhaps ought not to be called a period of indifference, but which was at least a period of indifferent success, a period within which the vital influence of the library was at a low ebb. It is hardly too much to say that the present thought and the new activity in the library world date back not more than a quarter of a century.

Nor would it be too much to assert that here again as in so many other directions the influence of Johns Hopkins can be clearly recognized. This does not mean that such institutions as Harvard and Columbia lagged far in the rear, if they were in the rear at all; but it is certainly true that the impetus given by Johns Hopkins to graduate work had a very marked influence upon the attitude of all institutions of learning toward their libraries. It was about this time also that Columbia had the good fortune to place at the head of its Library Mr. Melvil Dewey, who today is widely and gladly recognized as a pioneer not only in the orderly classification of the contents of a library, but in the general thought and purpose to make the library infinitely more efficient than ever before, by bringing the books and the readers together along the lines of least resistance and by methods requiring the least expenditure of time. No matter who nor how many have disagreed with Mr. Dewey in details, the credit for new life in the library world, for alertness and energy and enthusiasm, for the recognition of the work of the librarian as a new profession, and for that which he himself has

so aptly denominated "the missionary spirit"—for all this Mr. Dewey has received and always will receive the grateful acknowledgment and the kindly remembrance of all who are engaged in this work or who are affected by it.

The scientific temper, the scientific method so-called and rightly so-called, has much to do with the present library status, and is also entitled to great credit. Indeed, the advance of library methods has simply kept pace with the advance in all other educational methods, and all of these are under a bond of obligation to the scientists: though the bond may not have quite the face-value which the scientists themselves sometimes assert. But the demonstration of the value of the laboratory method and of its possible use and its profitable use in all branches of teaching, at once made those in charge of libraries responsible for the development of ways and means by which the library could become the one great laboratory for all workers in the college or university.

It has often been pointed out that a university library ministers to the needs of three quite different classes: officers, graduate students, and undergraduate students. Considering these in the reverse order, the demands of the undergraduate are quite specifically limited to what may be called general literature, the works of power, and to such reading as he is required to do in connection with his daily classroom routine.

It is entirely within bounds to say that eight or ten thousand volumes, carefully chosen, would form an entirely efficient and satisfactory working library for undergraduates, and half that number would easily cover all the required collateral reading of a large institution. It must not be thought that this statement implies an undervaluation of the library work of undergraduates; quite the contrary is true. The spirit which in earlier days restricted undergraduates in our own library to a weekly visit in charge of an instructor, or which prompted the librarian of one of the great Irish universities to say recently, quite indignantly, "No provision made for students? Why *should* provision be made for students? They have all they can do to take care of their daily work"; is the spirit of a past which is very dead indeed. But the time of the undergraduate is quite completely absorbed in work

which is laid down for him on definite lines. His opportunity for general reading is small therefore, and during the first half of his course at least the required collateral reading is all that he can be expected to carry, and is enough to give him all desirable insight into nearly every form of literature which he is then able to examine with fair promise of either interest or understanding.

For the work of officers and graduate students, it is hardly possible to bring together too many aids or to make any collection too large or too complete. Of course, this demand varies with the number of those making it, and varies also very materially with the breadth of the instruction offered, increasing precisely as the total number of courses offered increases. While it is entirely true that the university may and does expect every officer to provide reasonably for his own immediate and personal and what may be called private needs, there is an immense field in which he must labor for success, for which labor the university must see that he has the best possible equipment. It is a mistake to consider this as entirely personal to the instructor, because every student under him needs ample reference facilities along the same lines; and as to special subjects, it is impossible to determine just what theme a graduate student may undertake. As an excellent illustration, though by no means the only one, the amount of material collected and used by Professor William M. Sloane, in the preparation of his remarkable history of Napoleon Bonaparte, has made this library noteworthy in this direction. In periodicals and serials, in which the last word though rarely the final word is spoken, a university library must be peculiarly rich if it is to be helpful to its officers and keep its instruction up to date. This is quite as true of that portion of the library which covers the humanities as of that portion which is devoted to science. In a day like this, when the best thought of the world is put in such shape, it is impossible to refuse to enlarge the subscription list to the very limit of ordinary resources—even beyond the limits of ordinary resources.

There must be, then, the comparatively small library for each department, for the especial use of all officers in the department; and in addition the University must collect largely—as largely as possible—in every field of knowledge. And this for the graduate

as well as for the officer, in a certain sense perhaps more than for the officer—although the interests of both are inextricably and helpfully interwoven.

In the use of these great collections, and possibly in the purchase of these, attention and consideration must be given to the wants of a certain portion of the general and outside public. It should be the pleasure as it is the duty of every university library to minister to all scholarly wants and to advance all scholarly endeavor. It is not only wise from the standpoint of a possible return to the community which is maintaining the institution, but is good policy (to say nothing more) for two reasons. First, because all good work helps all other good work, and a general advance of scholarly standards and scholarly attainments adds to the interest in the institution, to the intelligence and readiness with which its appeals for financial assistance are met, and to that appreciation of its place and value which is shown by a constantly increasing number of students. Second, because its own graduates are scattered far and wide in the land, and may and do find it exceedingly desirable to have access to libraries wherever they may be: which when secured is the ground for a certain inter-institutional courtesy by which similar favors are extended by the home library to all college-bred men within reach. The mutual interest of college men is greatly strengthened and its effectiveness is largely advanced by this attitude, common to all college and university libraries of any standing.

In all these relations to the thinking outside world, the position of Columbia University is somewhat unique. Occupying a position of great prominence in the metropolis of this country, it has not only large local opportunities and duties, but these easily assume even a national character. Because of the centrality of our location the demand upon this Library from the outside world is constant and from almost every quarter of the Union. Scarcely a day passes in which this Library is not visited by scholars of high repute, by men prominent in public position, by officers of other educational institutions, by distinguished foreigners, and by others equally interested and equally interesting. During each summer vacation we entertain at least two hundred officers of instruction from other educational institutions, who (finding their own library facilities

more or less inadequate) spend their mid-summer holiday, or a large portion of it, in special work in our alcoves. A system of inter-university loans is also maintained, under which during the last academic year we sent out more than four hundred volumes —some of them even to the Pacific Coast—to meet demands which were pressing, from those who could afford neither the time nor the expense necessary to personal enjoyment of our hospitality.

This University finds it necessary also to meet unusual graduate demands, because of the very large number of college-bred men who are constantly here seeking their second and third degrees, or are doing some difficult bit of special work without asking this recognition. Of five thousand students, nearly half have taken their first degree here or elsewhere, and are pursuing professional or technical studies, or are increasing their general scholarly attainments. The natural and necessary demands of such students are somewhat unusual and extraordinary in the library world of this country, and give a very distinct color to all the work of this institution. It is hardly too much to say that the purchase and equipment and administration of Columbia Library are quite largely determined by the necessities of the graduate body.

At the same time, this Library is relieved, to a certain extent, of a demand which falls quite heavily upon the libraries of those institutions carrying a larger body of undergraduates, and especially of undergraduates who are absent from their homes while in attendance upon college. The undergraduates of Columbia are very largely residents of New York or of its immediate vicinity, and are living at home. They have the advantage of home libraries, therefore, and of the great local public libraries as well: and the University is not obliged to buy as heavily along certain lines of general literature as are many other institutions of learning. This may account for the absence of some complete sets of well-known authors, an absence which is quite apt to surprise those who do not fully understand the situation.

The chief strength of Columbia Library is found in the fact that it has been built up in a definite way around the work of the various departments of the University. There has been very little purchasing *en bloc,* selection has always been made with peculiar

intelligence and care, the heads of departments are in constant consultation with the Librarian, the greater part of the library appropriation is reapportioned to the departments and within the amounts thus assigned they take the initiative of purchase. Generally and fortunately gifts have been in money rather than in books, and the Library has been spared the infliction common to many, that of being regarded as the dump of house-cleaning time or the refuse-heap for collections not worth housing elsewhere. It is said of one of the great university libraries of this country that it has at least a hundred thousand volumes not one of which has been taken from the shelves for the last fifty years and not one of which in all human probability will ever be taken from the shelves again. Nothing of the sort is true of Columbia Library, its list of "dead books" being very small indeed.

Although the Library has been built up about the work of the departments, it was fortunate enough at the very start to adopt the unit system of administration, which has brought together practically in one place the three hundred and sixty thousand volumes which now occupy its shelves; and which has made this entire collection available under one scheme of classification and by one card-catalogue. Because Columbia still needs additional buildings for the work of instruction, only a little more than one third of its library building is now used for library purposes. This has resulted in placing in the temporary charge of two or three departments, large collections of books of peculiar value in their work. But all these are under the general administration of the University Library, all are classified and catalogued as a part of that library, are available to all who are entitled to use the general library, and are therefore not departmental libraries in the more usual and more exclusive sense of the term. While giving full recognition to departmental needs, the desirability of the unit system is clearly understood and freely admitted at Columbia: and there is little thought of abandoning or modifying this policy.

The general methods of library administration at Columbia do not differ materially from those employed in any institution of similar standing. Our policy may be summed up in the single statement that the sole aim of the Librarian and of his staff is the

general efficiency of the Library and the convenience and comfort of those who use it. They consider that they stand to the library world as the straight line stands in geometry—the shortest distance between two points, the book and the reader. The rules which cover the use of the Library are few in number and exceedingly simple and are constantly modified to meet extraordinary or unusual demands. The open-shelf system prevails in every department; the only restriction being a certain classification of those to whom this privilege is granted. As illustration, the seminars (each suite containing some 80,000 volumes) are open to graduate students only; the main stack room is accessible by written permission from the Librarian only; and the same is true of the Phoenix collection, and the collection known as Columbiana. But where special permits are required, these are granted practically on demand—and the general result is a wide-open library in which all move with the utmost freedom compatible with the rights and convenience and comfort of all and the general security of University property.

The hours are long—from half past eight in the morning until eleven o'clock at night, in all divisions and departments, during the University year, and only one hour less during the long summer vacation; and there are but fifty-six days in the year when the Library is closed—each Sunday, Thanksgiving Day, Christmas Day, Good Friday, and Independence Day.

It is quite impossible to even summarize in this article the special collections and the special opportunities of this Library, which so strongly attract graduate students in large numbers from every part of the country. Each professional or technical school is of course fully equipped with such specialized libraries as that of the School of Law, some thirty-five thousand volumes; or that of the Department of Architecture, known as the Avery Architectural Library, now numbering some eighteen thousand volumes, and increasing rapidly each year through the continued generosity of Mr. and Mrs. Avery; or by aggregations of the best authorities, classified continuously and contiguously upon the shelves.

Among the special collections may be mentioned that of the Department of Biology of about thirty-five hundred volumes; the

Department of Mathematics, which adds to its own large collection nearly twelve hundred volumes deposited by the American Mathematical Society; the Department of Geology, with more than two thousand volumes specifically set aside for this work; what may be called the Oriental library, containing some fourteen thousand volumes in all, of which six thousand are in Chinese, five thousand in Hebrew, two thousand in Sanskrit and the remainder in Arabic and Persian; the collection of works on education, now housed in the Bryson Library of Teachers College, numbering nearly fourteen thousand volumes; the rare editions and sets of the Phoenix library, some seven thousand volumes, in addition to a large number of valuable manuscripts and autograph letters; the *Ex Dono Amici* collection (comparative literature) which includes nearly three thousand volumes; and minor collections, such as the works of and about Goethe (some thirteen hundred volumes), a collection concerning Kant (now numbering more than eight hundred volumes), the Mary, Queen of Scots library (of nearly six hundred volumes).

For the special student in a specific department or following some given line of research, the inducements of the Library are extraordinary. In the Department of Philosophy, for example, may be found the current files of the leading periodicals of the world in philosophy, as well as complete files of nearly every important philosophical periodical from the beginning of its publication. There are also a large number of complete sets of important periodicals which are no longer published. In addition to these, there are few philosophers of importance whose complete works are not represented by standard and other editions. Of more important authors we have several editions, frequently beginning with first—which enable a student to follow the author's growth and development. The number of first editions in all departments of this Library is very large indeed, and they have not been collected as mere curiosities but as giving the history of the development of some special line of thought or work. In International Law, we have a very comprehensive collection of treatises, old and new; an unusually large collection of the various sets of treaties of all powers, both those published by the governments and by private

publishers; the British Parliamentary Papers are practically complete on our shelves; and as this Library is a depository for all public documents of the United States, and has long put forth special effort in collecting the reports and other public documents of the various states, this section of the Library is remarkably full and satisfactory. English Language and Literature has certainly one of the best and one of the most complete collections in the country —though it may be third or fourth in rank. It is the youngest of the good collections, and as yet has developed no special features. In the Department of Germanic Languages we have exceptionally full and satisfactory material for the student of the whole field of Germanic philology; for the student of Germanic literature of all periods, with texts and criticism; as in all other departments, a very large collection, in both sets and current numbers, of the periodicals in all languages which deal with Germanic literature and philology; and nearly all of the reports and publications of literary and philological societies in America and in Europe. Practically the same statement can be made of the Department of Romance Languages. In History there are such sets as "Collection de documents inédits" (about two hundred and forty volumes), "Société de l'histoire de France" (about two hundred and twenty volumes), "Monumenta Hungariæ" (one hundred and eight volumes), "Collection de chroniques Belges" (eighty-four volumes), "Acta sanctorum" (sixty-three volumes), "Archivio storico Italiano" (one hundred and twelve volumes). We have also "Hansard's Debates," the "Blue Books," the "Chronicles and Calendars of State Papers," and the "Journals of the Lords and Commons" (1509–1900, nearly three hundred and fifty volumes). Page after page might be filled with details of this nature. The widespread reputation of this Library is in itself sufficient proof of the unusual facilities offered here for advanced work of every description.

All these collections are housed in a superb building, the generous gift of ex-President Low; remarkable the world over for its architectural beauty. Its memorial character may detract somewhat from a certain arrangement of the interior thought by some to be quite necessary for efficient library administration; but this is

easily overcome by methods which have been employed here for some years and which have been found entirely successful.

For the convenience and comfort of general readers, the large quiet rotunda has been converted into a reading-room, around the sides of which are shelved some ten thousand volumes—directly available to each occupant of the room. The authors "required" for collateral reading by undergraduates, are stored in the stacks immediately back of the Loan Desk, and are loaned on a day-and-hour scheme which gives a possible use to each volume of fourteen hours a day. As a matter of fact, there are copies in the hands of the students every single hour of the long library day.

Graduate students have the freest possible use, in this building, of twenty-two seminar rooms, immediately adjoining each of which are the stacks carrying a choice collection of books specifically devoted to the work of the room. To each occupant is assigned a drawer for his private papers and a seat at the general table. The current periodicals connected with the work of the room are also filed here. The general effect is that of a strictly private library, the quiet and comfort and convenience of which are keenly appreciated by all who enjoy this privilege.

By no means content with its own resources, the Library undertakes to meet every reasonable demand of a graduate student, by borrowing or buying whatever he may need and cannot find on its shelves. And the University has still further enlarged the opportunities for research by special arrangements under which its students have free access to the collections and libraries of the Botanical Garden of the Bronx, the Metropolitan Museum of Art, and the Museum of Natural History, the Lenox and Astor Libraries, the General Theological Seminary and Union Theological Seminary, the New York Historical Association, the New York Academy of Medicine, and other similar institutions and organizations. Officers of the University also are very generous in granting the use of their private collections; and not a few citizens of the metropolis who are known as special collectors kindly minister to specific demands which cannot be met elsewhere.

The modern university library, then—of which Columbia's library may be taken as an excellent type—is indeed everybody's

workshop. To add metaphors without confusion, it is the laboratory of laboratories, it is the university's great alembic, it is an enlarged and expanded faculty, it is the blessed company of the Immortals, it is the *n*th power of a university training, it is the true Pierian spring. Perhaps the most adequate description will be found in the assertion that it is the heart of the university.

JAMES H. CANFIELD

THE DEGREE OF DOCTOR OF PHILOSOPHY IN THE UNITED STATES

THE establishment of the degree of doctor of philosophy in the United States is entirely a work of the second half of the nineteenth century. While even before 1800 there were "resident graduates" at Harvard College, it is not now discoverable what was done for them or expected of them. Through many years such persons are found, on examination of the old catalogues, to have been in residence, the greatest numbers being apparently twelve in 1811, and fifteen in 1845. Like the other colleges founded in America at later dates, Harvard had inherited in the main the English methods and traditions; but, as in many other departments of life, the English inheritance was augmented by practices learned from other nations. The degrees of *magister artium* and *doctor philosophiæ*, which were not widely different as first granted in continental European universities, except that the latter seemed more on a par with the doctorate in law and medicine, gradually diverged. In England the doctorate disappeared from the universities, except in medicine or as an honorary degree; the "master of arts" was retained, but its acquisition became merely a matter of keeping one's name on the college rolls. This condition was perpetuated in the colleges founded in the American colonies of English origin. In the course of the nineteenth century, however, the doctorate in philosophy, which had been maintained in continental Europe at the expense of the master's degree, was imported into the United States, where it did not displace the latter, but was merely superimposed upon it.

It is interesting to observe the first impulses, ineffectual though these were, toward the establishment in the United States of courses of non-professional training for men already in possession of the baccalaureate in arts. Four young Americans received the degree of doctor of philosophy in Germany within five years: Edward Everett in 1817, J. G. Cogswell in 1819, George Bancroft in 1820, and R. B. Patton in 1821. These, so far as I can learn, were the first of our countrymen to attain this degree at all; and it was only after an interval of twenty-seven years that another followed their example in the person of B. A. Gould. Then the fashion spread rapidly, and probably few if any years passed without the acquisition of the Ph.D. in Germany by an American. Bancroft, immediately after his *Promotion* at Göttingen, sought to turn his training to the immediate advantage of his *alma mater* (Harvard) and himself, by offering himself as a lecturer in history. His German degree gave him the right of lecturing in a German university, after the satisfaction of a few preliminary formalities, and in his youthful enthusiasm he evidently supposed that his own college at home would welcome a volunteer addition to its forces. He intended (as he said in a letter written fifty years afterwards) "to introduce among us some parts of the German system of education, so as to divide more exactly preliminary studies from the higher scientific courses, and thus facilitate the transformation of our colleges into universities, after the plan everywhere adopted in Germany." The authorities of Harvard College had no sympathy with this aim, and his request to be allowed to lecture was refused. For more than twenty-five years after this nothing seems to have been done at any of the colleges in the United States toward the development of instruction for graduates.

Then, in 1847, a beginning was seriously made at Yale. A course, or group of courses, was established, to provide advanced instruction in "mathematical science, physical science and its application to the arts, metaphysics, philology, literature and history." Though leading to the degree of *bachelor* of philosophy the courses were intended chiefly for graduates, of Yale or other colleges. They were gradually but steadily expanded, and soon separated into two groups, from one of which resulted the Sheffield

Scientific School, the other being continued as the courses in history, philology, philosophy and mathematics. By 1860 these had been so fully developed that the college determined to provide for the degree of doctor of philosophy. The Catalogue for 1860–61 contains the following statement of this organization of the work for the degree—the first of its kind, so far as actually carried out—in the United States:

> It is required of candidates for the degree of doctor of philosophy, that they shall faithfully devote at least two years to a course of study selected from branches pursued in the Department of Philosophy and the Arts. The selection may be made from either or both sections, but must belong to at least two distinct departments of learning. All persons who have not previously received a degree furnishing evidence of acquaintance with the Greek and Latin languages, will be required before presenting themselves for the final examination for the doctor's degree, to pass a satisfactory examination in those languages, or in some other studies (not included in their advanced course) which shall be accepted as an equivalent by the Faculty. The degree of Doctor of Philosophy will be conferred on all members of the Department who, having complied with the conditions above stated, shall pass a satisfactory final examination, and present a thesis giving evidence of high attainment in the branches they have pursued. Bachelors of Arts, Science and Philosophy will be admitted to the Scientific School as candidates for the degree of Doctor of Philosophy without examination. Other persons may be admitted as candidates for the same degree on passing the examination required for the Bachelor's degree.

It is interesting to notice that the arrangements for this higher study and the advanced degree were made, not in connection with the college itself, but with the newly founded "Scientific School"; it was very many years before the "College" really took the graduate work into its bosom. The degree was given for the first time in 1861, to three persons, all graduates of Yale: Eugene Schuyler, James Morris Whiton, and Arthur Williams Wright. Instruction of this kind was henceforth carried on without interruption, and some of the most noted men in America took part in it—among others Whitney, Woolsey, Salisbury, Porter and Silliman.

Beginnings, but hardly more, of instruction for graduates were made at several other institutions; so at the University of Mich-

igan, where the degree of master of arts was first conferred after examination in 1859. A plan for graduate instruction formed at Columbia in 1854, though only partly carried out and not long in operation, was substantially followed in the thorough reorganization which, begun in 1880 with the establishment of the School of Political Science, was completed in 1890 and the two following years. The scheme of three separate schools of (1) philosophy and philology, (2) jurisprudence and history, and (3) mathematics and physical science, is reflected in the present organization of the "non-professional" graduate faculties. These three faculties alike prepare for the degree of doctor of philosophy; the differences in their regulations for the higher degrees affect chiefly minor details of administration, and the student may choose his work under two of them, or even all three, so that in effect they form one graduate school. The degree of doctor of philosophy was first awarded at Columbia in 1883. At first the regulations governing its acquisition were not very satisfactory; the Faculty of Political Science imposed and maintained fairly severe conditions, but in general the administration was lax. In 1890, with the reorganization of the institution as a whole, much stricter regulations were adopted. The number of degrees bestowed from

	Ph.D. Degrees	Columbia College Graduates	Graduated Elsewhere
1883	3	3	0
1884	3	3	0
1885	9	8	1
1886	6	4	2
1887	0	0	0
1888	7	6	1
1889	4	2	2
1890	15	10	5
1891	9	3	6
1892	3	1	2
1893	12	7	5
1894	27	17	10
1895	13	2	11
1896	11	3	8
1897	16	0	16
1898	21	1	20
1899	37	11	26
1900	17	0	17
1901	26	3	23
1902	33	1	32
1903	39	4	35
Total in 21 years	311	89 (29 per cent.)	222 (71 per cent.)

that time until the present shows remarkable variations. It is worth while also to note the varying proportions of recipients of the doctor's degree whose first degrees had been taken at Columbia College.

In spite of the fluctuations, the proportion of students who come from other institutions to Columbia for the higher work of non-professional character shows a steady and remarkable increase. Not since 1894 has the number of Columbia graduates among the Ph.D.'s equalled, or even approached, that of graduates of other institutions. At Harvard in 1903 twenty-five per cent. of the Ph.D. recipients had received their first degree at that university; at Yale thirty-nine per cent.; at Johns Hopkins eleven per cent.; and at Columbia ten per cent.

At Harvard the attempts made since 1860 to attract graduate students had proved ineffective, the resident graduates numbering only five in 1868–9; but in 1872 a graduate department was formally organized, with extensive provision for instruction leading to the degree of Ph.D., and also to that of doctor of science—a somewhat higher degree, requiring a full year of work beyond that required for the doctorate in philosophy. Twenty-eight students were enrolled the first year. In 1889–90 111 graduate students were reported as in attendance; and the "department" was in that year formally organized into a "graduate school."

The Johns Hopkins University at Baltimore, opened in 1876, was founded with the intention of providing chiefly for graduate instruction, which was organized under the form of a "faculty of philosophy." An undergraduate department was however established in connection with it; and only many years later the School of Medicine was added. From the first the high standards set and the brilliancy of the men elected to teaching positions secured for the institution a powerful and extensive influence. Its foundation came at a time when the fashion of going to Germany for advanced work had been firmly established, and its officers of instruction were almost without exception holders of German degrees, so that naturally German methods were followed in preference to others. The lack of college traditions, often sympathetically deplored by critics of the Johns Hopkins, was in many ways an

actual benefit to the institution, as making easier the concentration of effort upon the training for strictly "research-work" (much abused term!). It is still an open question whether the existence of an overshadowing undergraduate department does not exercise a distinctly unfavorable influence upon a graduate school, by confusing the methods of work (since it very rarely happens that the same men do not instruct in both the undergraduate and the graduate schools) and by unduly stimulating the narrower, pettier form of college patriotism which has brought so many evils in its train. No American university of any size, however, has yet found it possible to exist without such an underpinning. The writer of this may be permitted to quote verbatim from his monograph on The American University published in 1899:

> That this addition [*i. e.*, of graduate schools] to our educational system was in general made in connection with existing institutions has been on the whole a great advantage to us. Great libraries, laboratories and museums, such as are necessary to a university, cannot be created at once, even with adequate endowments. Until the principle of American government is changed it will not be possible to create state institutions exclusively devoted to the highest education; nor, under the political conditions of the United States, is it desirable. The number of men thoroughly competent to organize and administer a great university is very small indeed; the best commercial or political organizer often fails most signally in this field. For this very reason, probably, the experiment has not yet been possible on a scale large enough to afford a real test.

The creation or introduction of a new degree in the United States seemed to a great number of the smaller colleges and self-styled universities of the country an opportunity for self-advertisement much too good to be lost. The older degrees had become demonetized, so to speak, by their use as empty compliments; there was no provision made in the United States for earning the degree of doctor of laws or doctor of divinity in course, and so nothing that could well be taken as a standard of comparison. As it was too cumbersome (and often plainly undesirable for other reasons) to write after one's D.D. or LL.D. the full or even the abbreviated name of the institution which had bestowed it, the practical result

was that all such degrees, instead of conferring honor upon the recipient, were honorary only when honored by the individual who bore them. So far did this degradation of degrees go that it came to be regarded as a sort of humiliation to an elderly clergyman that he had not D.D. or S.T.D. after his name. Of course the larger and more reputable institutions have generally been careful in the award of such degrees, but the smaller ones (unfortunately not always the smaller ones only) have continued to scatter them broadcast. For obvious reasons the degree of M.D. was not often given *honoris causa*. The terms on which it was obtainable often rendered it little if anything more than an honorary degree, but there were at least some requirements of study to be fulfilled in almost every chartered institution which bestowed it. The fact that possession of the degree entitled the holder to practice medicine undoubtedly saved it from the complete degradation of the other doctorates. The new degree of doctor of philosophy, however, when introduced into this country, was established as a reward for very definite and severe work, and was universally recognized as an importation from Germany, the land towards which the eyes of educational reformers were longingly turned even before the middle of the nineteenth century. This gave it a prestige from the first; and not unnaturally, in a land where obliging legislatures give to educational institutions the charter-right or added privilege of conferring any academic degree whatever, it was counterfeited almost from the beginning. Within twenty years from the first award of the degree at Yale the American Philological Association found it necessary to protest emphatically against the abuse, and the Federation of Graduate Clubs in 1896 uttered a dignified but forcible denunciation of such prostitution of the degree; while for years past the *Educational Review* has carried on a vigorous campaign against the practice, mercilessly exposing the bare-faced offers made by some obscure institutions to enroll persons on their "Alumni list," with the rank of Ph.D., for a moderate consideration only. The following table, derived from the reports of the United States Commissioner of Education, will give an idea of the prevalence of the practice, unhappily not yet entirely checked:

Number of Ph.D. Degrees Granted in the United States.	1873	'84	'89	'94	'95	'96	'97	'98	'99	'00	'01	'02
On examination	25	28	121	233	234	239	227	304	325	342	343	266
Honorary	17	36	50	3	34	27	30	15	11	23	35	9
Proportion of honorary to regular degrees in per cent.	68	128	41	14	15	9.5	13	5	3.5	7	10	3.5

The worst offenders have been the smaller denominational colleges in the west and southwest. In 1901, for instance, the worst of recent years, Santa Clara College, Cal., gave seven such honorary Ph.D. degrees, and the American University of Harriman, Tenn., gave nine. Neither in 1901 nor in 1902 did any one of the institutions that gave the degree on examination bestow it as an honorary degree. The conditions, however, are not on careful scrutiny found to be as favorable as this statement would seem to imply. Many of the institutions which claim to award the degree for work actually performed advertise conditions so absurdly lax that the degree is in fact no better than an honorary or rather a gratuitous one. One institution, which grants it for a very moderate amount of rather elementary reading done *in absentia* (terms on application) makes the requirement that the examination to be taken must be held "in the presence of a clergyman."

During the five years from 1898 to 1903 only the following universities have created more than ten doctors of philosophy in any one year:

		1898–1899	1899–1900	1900–1901	1901–1902	1902–1903
Chicago	Men	23	39	29	26	30
	Women	8	4	7	1	4
		31	43	36	27	34
Columbia	Men	32	20	25	30	37
	Women	2	1	1	3	2
		34	21	26	33	39
Cornell	Men	5	17	17	18	17
	Women	2	2	3	5	3
		7	19	20	23	20
Harvard	Men	23	35	29	28	28
	Women	0	0	0	0	0
		23	35	29	28	28
Johns Hopkins	Men	42	35	30	17	27
	Women	0	0	0	0	0
		42	35	30	17	27

			1899-1900	1900-1901	1901-1902	1902-1903
Pennsylvania	Men	17	14	19	13	27
	Women	3	1	6	1	2
		20	15	25	14	29
Yale	Men	28	21	30	30	32
	Women	2	5	9	9	4
		30	26	39	39	36

Merely from the absence of any institution from this list no conclusion could properly be drawn as to the advantages for higher work offered by that institution or the severity of its requirements for the degree. Severity of requirement is of itself little or no bar to a large attendance of graduate students—rather the contrary. The degree from one of the more famous universities is so good an asset to the young scholar that the attainment of it is felt to be worth any sacrifice, pecuniary or other, that he can make. The smallness of the number of Ph.D. degrees created by some of our best known universities must be explained from other causes. Bryn Mawr College, for instance, has not in any one of these five years granted more than three doctorates; yet the opportunities for advanced work there are excellent, and the standard maintained is quite as high as anywhere in this country.

In general, the universities situated in or near large cities will always draw the most graduate students. Probably great fluctuations from year to year in the number of persons admitted to this degree will always be observed. The time to be spent in study for it can not be estimated accurately in advance; the candidate must finish certain pieces of work before coming up, and his special investigations may be prolonged a good while, perhaps a year or more, beyond the expected time, so that in one year a larger, in the next a much smaller number may finish their work and take the degree, though the total number of graduate students remain nearly stationary. The growing habit of migration of graduate students from one university to another during their work for the doctor's degree must also be taken into account. This is a practice which ought to be much more prevalent in the United States than it is; it will surely become commoner in proportion as the various universities come into closer agreement in their requirements for the degree. A graduate student should, so far as his peculiar condi-

tions allow, seek the instruction of the man most eminent as investigator and teacher in the line of work chosen by that student, for at least a part of his course; but particular causes may make it very desirable that he take his degree elsewhere. At universities like Harvard and Yale, where the undergraduate colleges are of enormous size, and college patriotism peculiarly strong, it is only natural that the young graduate should prefer to remain for his graduate work as well; but even here the tendency to seek other universities for at least some of the advanced work is growing stronger, and ought to be encouraged. Some years ago a Harvard professor, in speaking on this question, said with evident pride that Harvard had always encouraged migration—in her own direction. All universities do that; it would have been a greater compliment to his *alma mater* if he had shown that she encouraged migration from Harvard as well. But perhaps that is too much to expect of any American university for a long time to come.

In the matter of requirements for the degree the leading American universities do not differ greatly, at least not in essentials. The requirement of a bachelor's degree from a reputable institution, or its full equivalent in academic training, as a prerequisite for admission to study for this degree is practically everywhere demanded. Columbia is particularly careful in this respect, referring all doubtful cases to a standing committee of the University Council. That there is a good deal of difference in the rigidity with which the nominal requirements are enforced is, however, patent to the careful observer. The length of time to be spent as a graduate in study also shows some variations; in general three years are demanded, though in some places, as at Columbia, a minimum of two is prescribed, but it is made practically impossible for any but the phenomenal student to satisfy the requirements in less than three. The form in which the regulations are stated sometimes seems to imply greater differences than really exist. For example, while most of the universities demand three "subjects" at examination, Harvard demands only one; but the word subject is there used in a much wider sense than elsewhere, one subject sometimes covering as wide a range as two or even three closely related subjects at other institutions. Columbia seems to have

gone furthest in exact specification of the allowable subjects, recognizing in the Faculty of Philosophy (philosophy, psychology, anthropology, the literary and philological subjects, but not history, political science or natural science) no less than fifteen different major and thirty-three minor subjects. The liberty of choice is of course restricted in various ways, to secure a combination of homogeneous subjects. The disadvantages of the Harvard system lie in its inflexibility, which sometimes makes it extremely difficult for a student to form combinations of subjects germane to each other but technically in different divisions, unless he greatly overburdens himself with work, and in the undue prominence given to written examinations. Everywhere at the better equipped universities the presentation of an acceptable dissertation is made the indispensable preliminary to taking the degree; in most places the examinations may not be taken until the dissertation is accepted. Concerning the examination itself, however, there is still much diversity. A paper on "The examination for the degree of Ph.D." was presented by Professor Magie of Princeton at the meeting of the Association of American Universities in 1901 (reprinted in the *Educational Review,* Vol. XXII), in which the writer shows with great clearness and force that the oral examination, before the whole faculty under which the candidate has studied, or a considerable part of it, is much the fairest and most satisfactory way of determining whether he has had the training rightly to be demanded of a doctor of philosophy, and has properly profited by it. Columbia has held from the first to this requirement, though with some variations of practice in detail among the three faculties. The dissertation is supposed to embody a considerable amount of independent research, and to be a serviceable contribution to the knowledge of the subject.

No great degree of uniformity in the requirement of printing the dissertation at the candidate's expense has, unfortunately, yet been reached. Some universities demand the presentation of a considerable number of printed copies to the university library, for purposes of exchange with other libraries. The question of the requirement of printing was discussed at some length at the meeting of the Association of American Universities in 1902, but no definite

agreement was reached. The advantages of the requirement would seem to need no demonstration: it serves as a check on institutions where a tendency to accept inferior work may show itself, it stimulates the candidates to more thorough and exact work and discourages prolixity, and it makes possible the distribution of the dissertations in places where they will be available for reference by other advanced students. The objections sometimes heard (that it involves the candidate in needless expense, that it encourages precocity by helping the young scholar to rush incontinently into print, etc.) seem insignificant in comparison with the apparent advantages. Here too Columbia's practice has been unvarying from the beginning, and no voices have been raised against its wisdom. It would be interesting and probably very instructive to make careful comparison between say twenty-five dissertations produced under the requirement of printing and the same number taken from institutions where the printing is not demanded.

The proportion of doctor's degrees to the total number of graduate students at any one university is of course small, and will always vary from year to year. The great majority of graduate students do not expect to go beyond the master's degree. For 1902–03 the figures for Columbia, Harvard, Johns Hopkins and Yale were as follows:

Columbia	$\frac{39}{557}$ *i. e.*, 7 per cent.	Johns Hopkins	$\frac{28}{187}$ *i. e.*, 14 per cent.
Harvard	$\frac{28}{316}$ *i. e.*, 8.8 " "	Yale	$\frac{36}{346}$ *i. e.*, 10.5 " "

Similarly, the proportion of candidates furnished by the different departments varies very greatly. In the first years of this degree in America the preponderance of candidates in linguistic, particularly in classical, subjects was very marked. With the rapid development of natural science, however, and of the historical and economic sciences, the linguistic departments have long since been outstripped. The opportunities for original research in natural science, where experiment plays so large a part, are of course much greater than in the older departments of learning, and students can be set at that sort of work at relatively a much earlier stage of their training.

The question is often asked nowadays: Does the German degree still hold its preeminent place of a score of years ago, or has the American degree come to be of equal value? The question must be answered differently for almost every case that is considered, and it is yet too soon for a generalization of any great value. The German degrees vary very greatly among themselves in difficulty of attainment, though much less so than those of this country. For many years the degree in philosophy has been thought hardest of attainment at Berlin, and many students, German as well as American, who have done practically all their work at Berlin have gone elsewhere for the degree, partly because of the difficulty of the requirements and partly also because of the expense. At some of the smaller German universities degrees in philosophy could be taken, up to a few years ago, on rather exiguous terms. Americans who have taken their degrees in Germany, even at one of the more noted and exacting universities, are sometimes heard to speak slightingly of the demands made upon them there, forgetting that for many years most of the German university authorities were notably complaisant towards our countrymen, accepting and graduating them on terms impossible for Germans to secure. Of late years the requirements have been enforced more impartially. The Johns Hopkins doctorate has from the first been about as difficult of achievement as any German degree, except perhaps those of Berlin and Bonn; and the same is now true of possibly half a dozen universities in this country.

All in all, the history of the development of this degree in the United States is one of the most striking indications to be found anywhere in the field of educational effort of the intense desire for advancement and improvement characteristic of the enlightened American. How seriously the attempt has been made, and how courageously persisted in, to get the best in the world of science, becomes vividly clear when one contemplates in comparison the slight success that has so far attended the efforts to establish "research degrees" at the English universities.

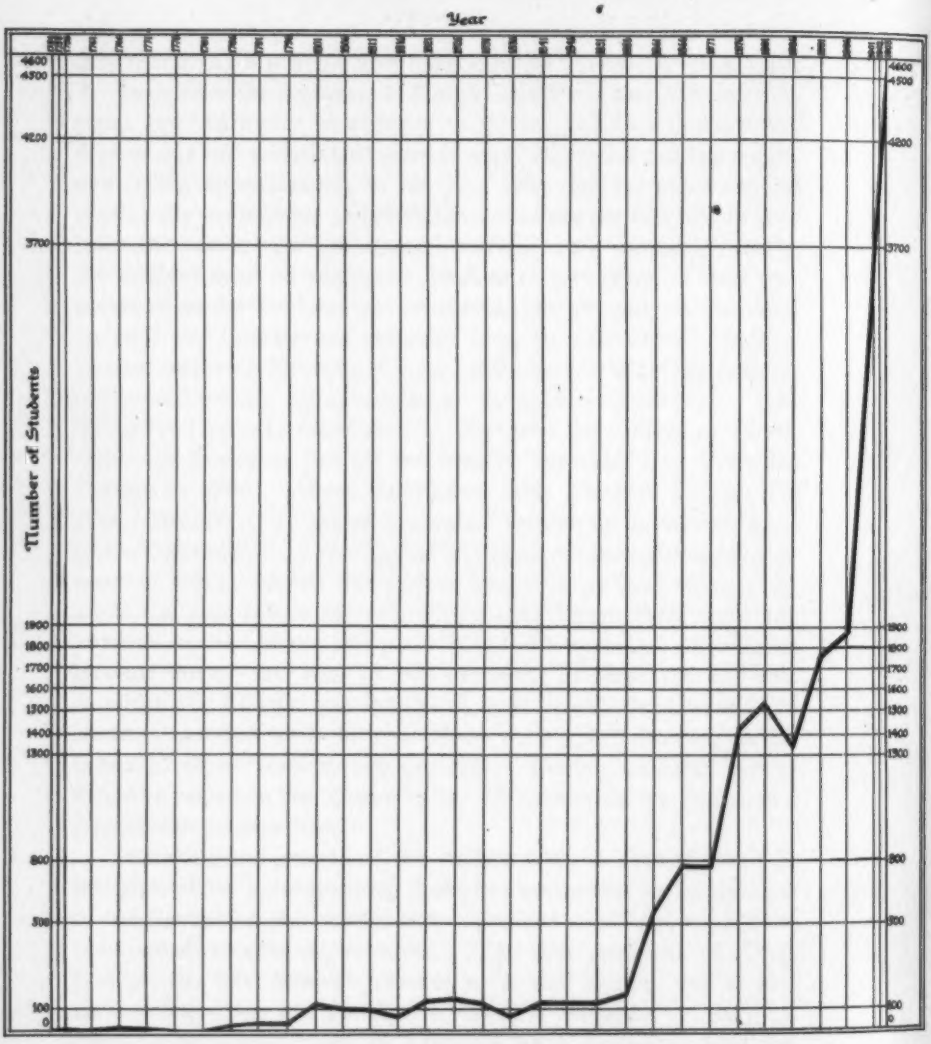
EDWARD DELAVAN PERRY

THE GROWTH OF COLUMBIA UNIVERSITY
1754–1904

IN examining a graphic presentation of the growth of the student body since the founding of Kings College one hundred and fifty years ago, we notice in addition to several ordinary mounds and depressions two periods that seem to mark important turning points, one falling approximately in the year 1860 and the other coming about forty years later. Investigation discloses the fact that in both cases the reasons for the unusual increase were identical, namely, the establishment of additional faculties or admission of new corporations on the one hand and removal to new grounds on the other. In 1857 the College was removed from its first site to Madison Avenue and 49th Street; just forty years later in 1897 the removal of the University to Morningside Heights was effected. The School of Law was established in 1858 and the College of Physicians and Surgeons became the medical department of Columbia College in 1860. About forty years later Teachers College (in 1899) and Barnard College (in 1900) became by agreement parts of the University. A few figures will illustrate the sudden development in the enrolment referred to above in general terms. In 1856, the year before the removal to 49th Street, there were 147 students in the College, five years later there were 531, showing an increase during that time of 260 per cent.; in 1896, the last year in which the College was located at 49th Street, there were 1878 students enrolled while in 1901 there were 3761, showing an increase of almost exactly 100 per cent. During no other similar five-year period in the history of the University do we find such a remarkable development.

In tracing the growth of the student body in greater detail on the basis of the accompanying chart, we notice that up to the time of the Revolution the student body remained small and no fluctuations worth mentioning occurred. The first president of Kings College, the Rev. Samuel Johnson, as is well known, was at first its sole instructor and the class which first assembled on July 17, 1754, in the school house of Trinity Church comprised nine stu-

Columbia University
Total Student Enrollment 1754-1903



dents, three of whom, the records tell us, severed their connection with the newly established seat of learning before the year was completed. The founding of a medical faculty in 1767 does not seem to have materially affected the enrolment, for the largest number of students attending Kings College at any time before the Revolution was 18 (in 1772). During the war academic exercises were suspended and they were not resumed until 1784, when the title of Kings College was changed to Columbia College. The medical faculty was not reestablished until 1792 and the number of students under this faculty remained small, until in 1813 the school was merged in the College of Physicians and Surgeons, which had been chartered in 1807 and had graduated its first class in 1811. The enrolment in the College proper also remained small until the beginning of the new century, when for the the first time it exceeded 100. From a purely numerical standpoint little progress was made during the first half of the 19th century. The attendance seldom exceeded 125, but from the time of the removal to the 49th Street site in 1857 up to the present there has been a constant numerical growth of the student body, which has suffered but few interruptions and those have been of little moment. During the progress of the Civil War the development of the University does not seem to have been retarded to any considerable extent, in fact the School of Mines was established before the close of the war (in 1864), but soon after the war a period of arrested development set in which affected the attendance, there being just as many students (795) in 1871 as there were in 1866. The following decade is characterized by considerable progress, its close being marked by the establishment of the Faculty of Political Science in 1880 and of the Department of Architecture in 1881. The course of collegiate study for women, which was established in 1883, was discontinued six years later and became Barnard College; the number of women students however, was not large enough to influence the total figures materially. In the five-year period from 1881 to 1886 we notice a decrease in the number of students in all the faculties, resulting consequently in a slight decrease in the total enrolment. The graduate faculties of Philosophy and Pure Science were established in 1890 and 1892 respectively and the former

especially has contributed more than its share to the general increase in enrolment during the last decade. The consolidation with Teachers College and Barnard College as well as the removal to Morningside Heights and the part these factors played in the development of the University from the standpoint of student enrolment have been referred to above. The first Summer Session was held in 1900; the growth of this sphere of University activity has been marvelously rapid, having exceeded all anticipations. The following figures giving the total enrolment (exclusive of extension students) for the last twelve years will convey a more accurate idea of the recent growth of the University than the chart can give:

1892	1570	1896	1878	1900	3207
1893	1640	1897	1946	1901	3761
1894	1804	1898	2191	1902	4234
1895	1942	1899	2610	1903	4507

This year according to the latest figures the total has risen to 4709, the details being shown in the table on the following page.

Having thus traced the growth of the entire student body, let us turn to the different faculties and briefly examine their separate development. We have seen how the College received an impetus by the removal to the 49th Street site, and the result was that for several years just previous to 1863 the attendance aggregated over 200. In the following year, however, the effects of the Civil War began to make themselves felt, and a steady decline set in which continued throughout the entire decade. It was not until 1874 that a new era of progress was ushered in, which culminated eight years later in a maximum attendance of almost 300. In 1882 the enrolment figures began to diminish again and the decline was not checked until 1887. It required four years to overcome the influence of this set back, so that in 1892 the number of students in the College was virtually identical with the enrolment ten years before. In 1893 the attendance exceeded 300 but the two following years showed another decline. The year 1895 marks a turning point in the growth of the College, viewed at least from a contemporary standpoint, for from 1895 on the number of students in the College has increased slowly but steadily, the 400 mark being

REGISTRATION AT COLUMBIA UNIVERSITY IN ALL FACULTIES, DURING THE ACADEMIC YEAR 1903–1904

Faculties	First Year	Second Year	Third Year	Fourth Year	Specials	Graduates	Auditors	Total
Columbia College	118	112	115	110	49	—	—	504
Barnard College	101	72	80	78	72	—	—	403
Total undergraduates	—	—	—	—	—	—	—	907
Faculty of Political Science	—	—	—	—	10	142	2	154
Faculty of Philosophy	—	—	—	—	6	404	21	431
Faculty of Pure Science	—	—	—	—	5	102	—	107
Total non-professional graduate students *	—	—	—	—	—	—	—	692
Faculty of Applied Science	175	227	144	103	74	17	—	740
Faculty of Law	121	152	110	—	1	—	—	384
Faculty of Medicine	106	164	190	178	36	—	—	674
Teachers College	—	—	—	—	—	—	—	688
Total professional students	—	—	—	—	—	—	—	2486
Deduct double registration †	—	—	—	—	—	—	—	*196*
Net total	—	—	—	—	—	—	—	3889
Summer Session 1903	—	—	—	—	—	—	—	1001
Grand net total ‡	—	—	—	—	—	—	—	4709
Teachers College extension students	—	—	—	—	—	—	—	1590

* The total 692 does not include 143 college graduates studying under the professional faculties of Law, Medicine, and Applied Science, who are also candidates for the degree of A.M. or Ph.D.

† The 196 are distributed as follows: 17 students in Columbia University (11 men and 6 women), and 79 in Barnard College are also enrolled in Teachers College as candidates for a professional diploma; 100 Teachers College students (34 Ph.D., 66 A.M.) are enrolled in the graduate faculties as candidates for the higher degrees.

‡ Excluding 181 Summer Session students of 1903 who returned for work at the University during the academic year 1903–1904.

passed in 1899 and the 500 mark in the present year. The academic department of Columbia is smaller than that of either Harvard, Yale or Princeton, but larger than that of Cornell and the University of Pennsylvania and the majority of the so-called "small colleges."

The early history of the Faculty of Medicine has been outlined above. During the period of the Civil War and for two years afterwards the growth of the medical faculty was marked, but in

1867 when the attendance had reached over 500 the effects of the war seem to have become manifest and a decline began. In these early years the medical course could be completed in two years of five months each. In 1870 an improvement set in and up to 1881, when over 550 students were enrolled, the progress was fairly constant. A brief period of decline lasted until 1885, but during the next three years the enrolment rose rapidly until in 1888 there were about 800 students. In the fall of that year the old two-year course was changed to three years and in consequence the enrolment fell off considerably during the next few years. The formal consolidation with the University in 1891 checked this decline and as a direct result of the consolidation a remarkable growth set in, so that the attendance in 1895 had reached the high point it occupied in 1888. In the fall of 1894 the four-year requirement was carried into effect, but during the first year this exerted no marked influence on the number of students. There were 222 students in the first-year class under the new curriculum against 276 in the last first-year class under the old three-year requirement. This was not as great a falling off as might have been expected, but the course requirements were made more stringent at the same time, as a result of which large numbers came to be dropped by the wayside. The temporary decline in the enrolment due to the lengthened course brings us to the year 1897, when the effect was overcome and a healthy growth set in which reached its maximum in 1902, when the student body numbered 809. Since then the requirements for admission have been raised considerably and as a result of the higher preliminary standards as well as of other causes, such as the increased cost of tuition, overcrowding of the medical profession, etc., there has been a slight falling off between 1902 and 1904, which is but a reflection of the general decrease in the number of medical students in institutions all over the country. The College of Physicians and Surgeons has been for several years and is still the largest medical school in America.

In the School of Law fluctuations in enrolment have not been as marked as they were in medicine. In the first place the war had little effect upon the attendance, the year 1867 being the only one which shows a loss from the establishment of the School in

1858 up to the year 1876, when the enrolment had reached 573, the largest attendance in the entire history of the Law School. During the following decade we note a gradual decline with an occasional gain, but in 1886 matters began to show a decided improvement and in 1890 the enrolment again exceeded 500. In this year the curriculum was lengthened to three years and numerous other important changes were instituted in the school. As a result the attendance fell off considerably during the next few years, but in 1894 the tide was turned and a steady development set in which culminated last year in an enrolment of 461. In the fall of 1903 the baccalaureate degree was for the first time demanded for entrance and in consequence the numerical growth has suffered. There are, however, 130 students in the first-year class this year, and undoubtedly the advanced requirements for admission will finally result in a considerable increase in enrolment. This has been the history of the development at Harvard, one of the two or three other universities requiring the baccalaureate degree as a prerequisite for entrance, and there is no reason to suppose that Harvard's experience should not repeat itself at Columbia. Harvard introduced the requirement several years ago and has now almost 750 students enrolled in its law school, Michigan leading the universities in this department with over 800 students of whom, however, only a very small percentage are college graduates.

In the Faculty of Applied Science the growth on the whole has been so devoid of irregularity and interruption, that there is little to be said. The " School of Mines " enjoys an international reputation and attracts students from every quarter of the globe. A few years after the war a slight falling off in the number of students in the School of Mines was noticeable, but after 1870 the attendance increased rapidly for an entire decade. The decade from 1880–1890 marks a period of stagnation in the numerical development of the school, in spite of the fact that the Department of Architecture was established in 1881. However, the succeeding decade, from 1890 to 1900, was one of marked progress, the only interruption in the growth occurring in 1896, when there was a slight decline. The Department of Electricity was established in 1891 and while not the largest engineering department as far as

attendance is concerned, has graduated more men (197) during the past ten years than any of the other branches of the School of Engineering. In 1890 there were 266 students enrolled altogether and in 1900 the number had increased to 491. Since then the increase has been even more marked, there being 740 students enrolled this year. In 1902 the Department of Architecture was separated from the Faculty of Applied Science, Music at the same time being set off from the Faculty of Philosophy. These two departments were merged into "Fine Arts"; but inasmuch as no actual faculty of Fine Arts has yet been established, the architectural students have been included under Applied Science. The following table giving the figures for the present year explains the distribution of the students in the different departments:

	Year						
1904	First	Second	Third	Fourth	Grad.	Spec.	Total
Architecture	19	21	14	9	5	22	90
Chemistry	11	14	3	4	*	4	36
Civil Engineering	34	30	22	20	3	4	113
Electrical Engineering	43	47	27	24	3	5	149
Mechanical Engineering	27	38	16	19	1	13	114
Metallurgy	2	4	1	1	3	—	11
Mining Engineering	39	73	61	26	2	26	227
	175	227	144	103	17	74	740

In no branch of the University's work has the gain in enrolment during the past decade been more marked than in the graduate faculties of Political Science (founded in 1880), Philosophy (established in 1890), and Pure Science (organized in 1892). The Faculty of Political Science conferred the degree of Bachelor of Philosophy in addition to the higher degrees until 1895. The following year there was a decrease in the number of students in attendance on the faculty, but since 1896 there has been a numerical growth culminating in 152 students in 1904. The Faculty of Philosophy furnishes perhaps the most striking example of unchecked development we have thus far examined. Beginning with less than 50 students, it has exhibited an increase in every single year of its existence—standing alone among the corporation fac-

* The graduate students in chemistry register under the Faculty of Pure Science. If they were included in the table, it would raise the chemistry figures to 62 and the total to 766.

ulties in this respect—until in 1904 its enrolment had reached 410. In Pure Science the growth has not been quite as rapid nor has it been altogether consecutive, but during the last year or two greater advances have been made, 107 students being enrolled in this faculty in 1904. The total attendance on the post-graduate faculties of Political Science, Philosophy and Pure Science in 1904, inclusive of 23 auditors, but exclusive of the graduate students under the Faculty of Applied Science, who in accordance with recent legislation are to register hereafter under Pure Science, amounted to 692, which gives to Columbia by far the largest graduate school in the country, the registration at the University of Chicago, at Harvard, and at Yale being several hundred below the Columbia figures.

The Summer Session, which was first instituted in 1900 and which during its brief existence has so thoroughly demonstrated the wisdom of its foundation, has more than doubled its number of students in four years. There were 417 students in attendance at the first session; in 1901 there were 579; in 1902, 643, and last year there were 1001, including 53 students in medicine and 8 new students in applied science. An even more striking idea of the development of the Summer Session is conveyed by the multiplication of the courses, of which there were 28 given in 1900, while no less than 141 will be offered in 1904.

It is only such a short time ago that Teachers College and Barnard College became officially parts of the University, namely, five and four years respectively, that the story of the growth of these allied institutions is naturally a brief one. In both we notice a steady increase in attendance, more marked in the case of the former institution. The figures giving only the primary enrolment for both colleges are rather misleading, especially in the case of Teachers College, inasmuch as a considerable number of students whose primary registration falls in a different corporation attends courses both in Teachers College and Barnard College. However, counting only the primary enrolment, we find that Teachers College, including candidates for diplomas from the two other corporations, has grown from 391 students in 1900 to 688 in 1904, and Barnard College from 301 students in 1901 to 403 in 1904.

The number of degrees granted by the University since its

foundation also constitutes an interesting subject of investigation, but as we might expect, the numerical development, speaking broadly, coincides with the increase in the general enrolment. The growth during the past few years has been exceedingly rapid. In 1899 the number of degrees granted had reached 502, but at the last Commencement no less than 868 degrees and diplomas were conferred upon 795 individuals. Since the founding of Kings College in 1754, altogether 17,360 degrees have been conferred upon 16,315 individuals, the degrees being distributed as follows:

Graduates in Arts (Columbia College)	3,804
Graduates in Arts (Barnard College)	294
Graduates in Teachers College (B.S.)	58
Graduates in Medicine	4,993
Graduates in Law	4,608
Graduates in Applied Science	1,562
Graduates in Political Science	186
University Graduates (A.M., LL.M., Ph.D.)	1,250
Honorary Graduates	605
	17,360
Deduct for repetitions	1,045
Total	16,315

In connection with the question of degrees it may be worth while to mention that last year about 40 per cent. of the students in the corporation already held the first degree. Almost half of these were in the graduate faculties, the remainder being found chiefly in the professional schools of law and medicine. In 1904 66 per cent. of the students in the Faculty of Law held first degrees, 40 per cent. in Medicine, 16 per cent. in Applied Science, and 27 per cent. in Teachers College.

Columbia University has been looked upon by many as an institution that draws its student clientele almost entirely from the city of New York and vicinity. This impression, however, is quite erroneous; while it may have applied fifty years ago, it is no longer true. In 1850, to be sure, the permanent residences of the students included only four states, 102 students coming from New York, 5 from New Jersey, 3 from Connecticut and 1 from North Carolina. If we examine the geographical distribution ten years later, we shall find 21 states and the District of Columbia repre-

sented, only 2 students, however, hailing from west of the Mississippi river, namely from California. This change of course was due to the introduction of the professional faculties of law and medicine. In the succeeding decades we note a general increase, 4 states west of the Mississippi river being represented in 1870 and 6 in 1880. By 1890 almost every state in the Union sent students to Columbia University and 22 students came from foreign countries. At the present day every state and territory (including Alaska) in the Union furnishes students to the University, and during the past year there were 8 from Puerto Rico and 85 from foreign countries. Of course the majority of the students from the states outside of New York are found in the professional and post-graduate faculties, nevertheless in 1903 the students in Columbia College came from 22 different states. During the past few years there has been no marked increase in the percentage of students in the University registering from localities outside of New York City. The ratio of New York City students to out-of-town students does not seem to have been materially affected by the removal to the new site, a fact largely, though not entirely due, no doubt, to the absence of dormitories. During the last few years the proportion of New York City students has been a little over half.

The growth in the number of officers has been just as marked as the increase in the number of students. There are this year 524 persons on the teaching staff of the University, the ratio of instructor to students being unusually large, namely one instructor for every seven to eight students.

With the erection of new buildings and the consequent improvement in the facilities now offered by the University, the enrolment should show a healthy increase for some years to come. Increased requirements in the professional schools tend to lower the figures for the time being, but the decrease due to these causes will be offset by a corresponding increase in the graduate faculties and the allied institutions. Now that the College of Pharmacy has become a part of the University, the figures will receive a further impetus, and it will not be many years before the enrolment at Columbia University will exceed 5,000 students, excluding the

extension students, who this year number 1590. Mere numbers are not necessarily a criterion of general excellence, at the same time they do signify something if they are combined with high standards, and so long as Columbia University continues to set such standards the growth of the University is assured.

RUDOLF TOMBO, JR.

COLUMBIA AT THE ST. LOUIS EXPOSITION

IN the Paris Exposition of 1900, education was made the first group of the classification, in accordance with the theory that education was the source of all progress. The St. Louis Exposition has followed this precedent, but has gone a step further and made education the keynote of the entire exhibit classification. It is the first exposition ever held in which a separate building has been assigned to education. The Palace of Education is in the very center of the exposition activities, bordering upon the court of honor and upon the main transverse roadway. It covers an area of about five acres and its classic lines render it one of the most beautiful buildings in the Exposition.

The greater part of the large central court of this building has been assigned to colleges and universities, the European universities being ranged on one side and the American on the other side of a broad main aisle which runs through the entire building. Facing this aisle, and sharing with Harvard the most prominent location in its class, is the exhibit of Columbia University. It is housed in a pavilion of classic architecture, designed by Messrs. McKim, Mead & White, and built of staff and plaster. Three of its façades face on aisles, affording three entrances to the exhibit. Each entrance is surmounted by a pediment containing a head of Minerva over a panel on which is the inscription, "Columbia University in the City of New York," the whole supported by fluted Ionic columns and flanked by panels framing seals of the College modelled in bas-relief. The pavilion covers an area of over eleven hundred square feet, and it is of interest to note that this is more than one fourth as much as the space allotted for all educational

exhibits at the Pan-American Exposition. The entire exterior and the heavy cornice and pilasters in the interior of the structure are finished in an ivory tint. The inside wall surfaces are covered with material of a soft light green color, the cases and furniture being of antique oak. Care has been taken to make the physical part of the exhibit form a harmonious and dignified whole.

The machinery of any educational exhibit is necessarily limited, and must consist in general of charts, photographs, printed matter, maps, models, apparatus and specimens; and our exhibit does not depart from this general rule. In the center of the room is a plaster model of the Library Building. At the right as one enters from the main aisle is the attendant's desk and book shelving containing the bibliographical collections. To the left are leaf-cabinets and a comfortable settee commanding a view of the entire exhibit. Along the opposite end of the pavilion and extending around both sides as far as the entrances from the side aisles are more leaf-cabinets and glass-cases containing interesting photographs of the exteriors and interiors of our buildings, floor-plans, charts showing the arrangement and scope of courses, diagrams of statistics showing the physical and academic development of the University, specimens of work done in the technical departments and apparatus used in the Department of Mining. Rising above them and commanding the entrances is a half-size model of the statue of Alma Mater loaned to the exhibit by Mr. Daniel C. French. Between this statue and the model of the Library is a long flat case containing the radium exhibit of the Department of Physics. The wall spaces over the leaf cabinets and book shelves will be hung with enlarged photographs showing the exteriors of our various buildings, singly and in groups, and large colored perspectives showing the proposed architectural development of South Field and a study of the development of the Milbank Quadrangle, treated as the west façade of the University group of buildings.

As it is imposible to do justice to the work and equipment of the entire University within the limits of an exhibit of this kind, it has seemed wise to concentrate attention upon a few departments which for obvious reasons will be of special interest in the territory most directly influenced by the Exposition. The School of Mines

and the departments having a close relation to it have therefore been given special prominence. The Department of Mining will exhibit a number of photographs illustrating its equipment, including photographs of the glass models of mines in the museum and a series of photographs taken in the ore-dressing laboratories, illustrating the work required of the students and showing the class engaged in various experiments. It will exhibit also a series of underground flashlight photographs taken in the Summer School of Practical Mining at Aspen, Colorado, last year, showing students engaged in underground surveying, and studying the timbering and other underground constructions. Besides these photographs the Department of Mining will exhibit a model of the mine-workings of the Mahonoy and Shenandoah Anthracite Coal Basin, Pennsylvania, which was made last year in the Department. The same department will also exhibit some special apparatus designed by Professor Munroe for the ore-dressing laboratories.

The Department of Metallurgy, in addition to a number of photographs of the laboratory and museum of the department, will exhibit twenty photomicrographs made by a graduate student in his investigations into the properties of alloys, a subject of very live interest at the present time.

The Mechanical, Electrical and Civil Engineering Departments will exhibit photographs taken in their respective laboratories, museums and lecture rooms, showing the locomotive, engines, pumps, testing machines and electrical machinery used for experimental and research work. They will also show reports of students on their laboratory work, a collection of maps illustrating the work of the Summer School of Surveying, and a number of portfolios containing examples of the design work of the third and fourth year students.

The Department of Astronomy will exhibit photographs illustrating the work of civil engineering students in the Summer School of Geodesy, while the School of Chemistry will show a series of photographs of the laboratories and lecture rooms of the Department.

The Department of Geology contributes a series of photographs illustrating the equipment and field work. The groups have been

taken of parties of students in Mining Engineering receiving instruction in field-geology. Several sample reports and maps are shown also in wing-frames following the photographs. There are also photographs of the lecture rooms and laboratories showing students at work, and of the geological museums, showing models of mines and other specimens illustrative of the subject.

While the work of the Department of Psychology will not be shown in this exhibit, the Department will be represented by two of its staff, who will be in charge of the government exhibit of psychology and anthropology.

In view of the wide spread of scientific and popular interest which is being manifested in radium and radio-activity the Department of Physics will show such samples of pitchblend, uranenite, willemite, polonium, thorium, uranium and radium as have a particular interest from their physical behavior or from their employment in research carried on in this department. In addition to these the exhibit will contain a modification of the Crookes radiometer which is driven by the evolved heat of the radium, and also the small acting electroscope devised by Mr. Strutt and improved in these laboratories and a regular electrometer devised especially for the measurement of relative radio-activity according to the usual method of determining the electrical conductivity which it imparts to the air. Drawings will make clear the operations of the apparatus and definitions and distinctions of the various "rays" such as kathode rays, X-rays, Becquerel rays, etc., as well as the characteristics of the alpha, beta, and gamma rays emitted from radium and included in the term "Becquerel rays." A fluoroscope is so arranged that an observer who cares to devote a few moments to resting his eyes may see a large piece of willemite rendered fluorescent by the radiations from a nearby tube containing radium bromide. A microscope will be so arranged as to enable a person to see the little flashes of light which are produced when the large positive ions (molecules) sent out by the radium strike upon zinc sulphide and make a miniature flash of light. The exhibit will also contain special aluminum tubes and holders for the therapeutic use of radium, utilizing the large percentage of radiations transmitted by aluminum, which is greater than in the case of glass.

A bibliographical exhibit of 350 volumes has been selected to illustrate the literary and publishing activity of the University and to indicate the resources of the University Library. The collection contains the entire publications of the Columbia University Press, consisting in all of forty-eight volumes and including a number of the serial studies edited by different departments of the University. It has furthermore the five volumes of the *Columbia University Quarterly*, published by the Press, and the series and journals issued under its auspices. The literary activity of the University is in addition represented by sets and representative volumes of the various journals issued by the different departments, or under the direct editorial control of officers of the University. There are also illustrative volumes of the many Contributions issued by the University from the various departments. The collection further contains the various official publications of the University to illustrate the methods and details of administration as a whole, and to indicate the scope and purpose of all schools and departments.

The literary activity of the student body is represented by volumes of the *Columbia Spectator* (daily), the *Columbia Literary Monthly*, the *Morningside* (monthly), the *Columbian* (annual) and of song-books and other interesting *Columbiana*.

The resources of the University Library are exemplified by the inclusion in the exhibit of volumes from many of the minor separate collections on all subjects, acquired both by gift and purchase, which it contains. There are in this manner, representative volumes from the Library of the Rev. Dr. Bristow of London, who bequeathed, in 1763, 1200 " valuable, well-chosen and useful books," from the law library of William Samuel Johnson, first President of Columbia College, from the John Jay Library, from the Phoenix Library, from the collection in Comparative Literature (*Ex Dono Amici Litterarum*), from the Oriental library of 14,000 volumes, of which 6,000 are Chinese, from the educational collection of 14,000 volumes, from the Kant collection of 800 volumes, from the Goethe collection of 1,350 volumes, from the Dante collection of 500 volumes, from the great Avery Architectural Library of 18,000 volumes, and from a number of other smaller collections and groups. An interesting part of the exhibit is a virtually com-

plete collection of the contributions to law literature by the present and past members of the Law Faculty of the University.

The exhibit made by Barnard College consists in photographs of the grounds, buildings and rooms, architects' floor-plans of the various buildings, a collection of publications, embracing on the one hand the official and administrative catalogues and circulars of information, and on the other a series of the *Mortarboard* (annual) together with a file of the *Bulletin* (weekly).

In addition to the statistics concerning its officers and students, included in the general University diagrams, the exhibit from Teachers College is divided into three portions, consisting of a collection of books, representing as completely as possible the publications of the various officers of administration and instruction, a collection of specimens of work, representing typical accomplishments of students in the technical departments of Domestic Art, Fine Arts and Manual Training; and a series of one hundred and thirty wing-frame screen faces. These screens display circular diagrams representing the number and relation of subjects included in the different years of the one collegiate and nine professional courses of Teachers College, and of the various years of the Kindergarten, Elementary, and High School courses in the College schools of observation and practice. In addition to these diagrams, there is mounted on the screens a printed statement of the subject-matter presented in each department of the College, and in each grade and year of its schools. Along with these latter statements there are mounted selected photographs or actual specimens of the work of students. Similar specimens are mounted in connection with the photographs and statements of each of the grades and years of the schools. Photographs of interesting exteriors and interiors of the College buildings are also shown.

A large number of interesting diagrams and charts have been prepared by the Registrar to illustrate the development of the University from the founding of Kings College in 1754 to the year 1903. The charts comprise graphic illustrations of the growth of the student body of the entire University, and also of the various faculties. Another set shows the growth in the total number of degrees granted by the University, special charts being taken up

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with the graduate degrees of A.M. and Ph.D. and with the engineering degrees. Still another set of charts explains the percentage of college graduates in the various professional schools. There is also a series of maps, upon which the number of students coming from each state is represented. Miscellaneous charts explain the growth in the number of courses and seminars offered by the University, public lectures given through the University, etc., etc.

An exhibit, educational or other, would never be entirely complete without some form of leaflet or pamphlet, couched in as attractive form as possible, which may be taken away as a suitable souvenir or circular of information for ready reference. Such a pamphlet has been prepared in the shape of a little picture-book of twenty-eight pages. An endeavor has been made to outline by means of half tone engravings and terse descriptive statements the scope of the work throughout the University, the facilities in laboratory and lecture-room and the encouragements offered to student life. It contains thirty-two engravings of different views of the University buildings and grounds, including Teachers College, Barnard College, the College of Physicians and Surgeons and the College of Pharmacy, while four pages are devoted to short descriptive statements of the work covered by the various departments throughout the academic year.

FREDERICK A. GOETZE

BASKETBALL

BASKETBALL in the short time of its existence has become the most important indoor athletic game, and there are probably at this day as many organized basketball teams as there are teams of any other athletic game, even including baseball. When we consider that basketball was not invented until 1892, it is remarkable that the game should have attained such proportions in twelve years. Mr. J. Naismith, then an instructor in the International Young Men's Christian Association Training School at Springfield, Mass., and now director of the gymnasium at the Uni-

versity of Kansas, is the inventor of basketball. It was felt by Mr. Naismith that an indoor game with some running and team play, such as we have in football, would be a valuable addition to the regular gymnasium work. The game was governed at the outset by essentially the same rules that are in practice today. The main difference between the original game and the game as played now were firstly, that a team was composed of nine players, secondly, that it was permissible for a player to carry the ball by tossing it in the air or bouncing it on the floor, and thirdly, that a goal from the field counted one point the same as a goal from foul. Ordinary bushel-baskets were used for goals, hence the name basketball. It was soon found that eighteen players did not have sufficient room in small gymnasiums and the number was cut down first to seven on a side, and two years after the game had been invented the number was reduced to five. The rule permitting the player to advance the ball by dribbling was for a number of years the source of much contention; modifications of the rule were made every year, but without satisfactory results, and finally (in 1902) this feature of the game was abolished. After a few years the method of scoring was changed, field goals being counted three points and goals from foul one point. A short time ago this rule was again modified by allowing only two points for a goal from the field.

As basketball was invented by a teacher in the Young Men's Christian Association Training School, it was played for several years almost exclusively in the Young Men's Christian Association gymnasiums, where it had a phenomenal development. Other organizations soon learned of the advantages of the new game and adopted it. Athletic clubs and military organizations were the first to imitate the Young Men's Christian Association. Yale was the first higher institution of learning to take up the game and play with outside organizations, and Yale's lead was soon followed by Wesleyan, Williams, and some of the western colleges. But basketball was not generally adopted by college and university men until about 1898; and since that time the game has been introduced in practically all the gymnasiums in the country. Many of the large gymnasiums boast of as many as from six to twenty teams and the

game has more devotees than all other indoor athletic games combined. Because of the start that the Young Men's Christian Association athletes had in playing basketball, they were victorious over all other teams, representing colleges, athletic clubs and military companies, until about 1899 or 1900. Since that time college teams have excelled in basketball, as they do in all other branches of athletics.

The tremendous popularity of basketball is due to three main causes. In the first place, the game is so simple that any one can take part in it and enjoy it from the beginning; this is not true of baseball, tennis or football. Secondly, the game is fascinating because of the great variety of plays, the large amount of activity it requires of the individual, and the opportunities it offers for exercising skill in passing, catching and throwing. Thirdly, there is not a more spectacular game than basketball; the rules prohibiting mass plays and tackling keep the game open, there are endless opportunities for brilliant individual playing as well as for exciting team-work in passing. The popularity of the game in some localities has been remarkable. There are many small cities in New England where a basketball game between the local team and a visiting team arouses so much enthusiasm that no other entertainments or social events are planned for the same evening. This very great popularity does not usually extend to the larger cities, but in Philadelphia, Germantown, Pittsburgh and a few smaller cities there has been sufficient enthusiasm manifested to maintain professional basketball teams. Thus far, however, interest in professional basketball has been limited to certain localities, and there are no indications that it will spread any further.

From the standpoint of the physical educator, basketball is an exceedingly valuable adjunct of the work of the gymnasium; it affords opportunities for the development of vitality, speed and endurance, and it stimulates interest in physical exercise by satisfying the desire for recreation. At the same time it is true that the very elements which make basketball a most valuable indoor game for normal individuals, make the game very dangerous for persons with nervous temperaments or with weak hearts. When the game is played in a dusty and ill-ventilated room, the effects

on the player are injurious rather than beneficial, and the game is so fascinating, that there is always danger of exhaustion from playing too long. I know personally of two cases of young men who died from the direct effects of excessive basketball playing. The game is also valuable as an agent for moral training in the same manner as football and other team games. The obedience to the captain, the sacrificing of one's self for the good of the team, the self-control developed by personal contact with an opponent, and the spirit of fairness in sport, are all valuable factors in the development of character.

Besides these advantages basketball has proved a most admirable game for intercollegiate competition. In 1899 the Intercollegiate Basketball Association was formed by four eastern colleges, and later two others were admitted. Columbia on account of the lack of a gymnasium did not adopt the game until 1899. For two years the game was played only for exercise and recreation, although there was some interclass competition. During the college year of 1901–1902 the University was represented for the first time by a Varsity team. As might be expected Columbia lost most of her games against teams representing colleges where the game had been popular for a number of years. But the following year, in 1902–1903, the team made vast improvement and won 10 out of 16 games played. The team of 1903–1904, which has just closed its season, has not only exceeded the performance of previous Columbia teams, but has surpassed the record of all college basketball teams by winning all of its ten intercollegiate games, the majority by large scores, thereby bringing the intercollegiate basketball championship to Columbia.

Three elements are essential for a winning team. The players must have great vitality and endurance; these qualities the Columbia team possesses to an unlimited degree. The players must be skillful at passing and accurate in shooting goals; the champion Columbia team was remarkable from the fact that every player was an expert in both of these requisites. In order to develop team-play, individual players must resist the temptation of making brilliant plays by long throws for the basket; here again the 1904 team had no equal. In every game the spectators were treated to team-plays

which were nothing short of wonderful; the ball would be started under the opponent's goal, and by a series of most skillful and brilliant passes, would be carried the whole length of the field through the entire opposing team, and finally caged without a single opponent being touched. The team deserves much praise for its persistent efforts and brilliant work in bringing athletic honors to the University.

GEORGE L. MEYLAN

THE ASSOCIATION OF AMERICAN UNIVERSITIES

THE Association of American Universities held its annual meeting at New Haven, February 18, 19, 20. Thirteen universities were represented, namely, the University of California, the Catholic University, Chicago, Clark, Columbia, Cornell, Harvard, Michigan, Pennsylvania, Princeton, Leland Stanford, Jr., Wisconsin and Yale. Among the delegates were Presidents Wheeler, Harper, Hall, Eliot, Jordan and Hadley.

The discussion of the paper on "Uniformity of university statistics," presented at the previous meeting by Mr. Keppel of Columbia University, was the special order for the first session, and the matter of statistics of expenditure was first considered. President Hadley explained the system followed at Yale, praised the treasurer's reports of the University of Pennsylvania as being specially intelligible, and criticised Mr. Keppel's statistics because permanent receipts were placed in the same schedule with current receipts. President Eliot criticised the policy followed by certain universities of treating each trust fund as a separate capital and keeping the yield of each such fund distinct. The Harvard policy is to throw all the trust funds into a common mass and to divide the total income among all *pro rata*. Under this system each trust fund insures all the rest—a feature which has proved attractive to donors. In reply to a question, he said that Harvard University always refused to guarantee a definite income on any particular endowment. He criticised the Columbia plan of publishing the itemized expenses of the several departments, declaring that university policy should not in any way be guided by such tables.

Passing to the matter of statistics of registration, the discussion elicited a general opinion that Mr. Keppel's suggestions were useful as well as interesting, but that uniform methods could hardly be adopted at present because the conditions of the different universities were too diverse.

At the second session papers were presented by Presidents Hadley and Jordan on "Lines of distinction between college and university work." President Hadley pointed out that the university in England is an examining body, in France an administrative organization to supervise and regulate instruction, in Germany a correlated group of faculties preparing men for the various learned professions. In the United States there is no well-defined use of the term. The English definition is not applicable because the American faculties are teaching bodies; nor the German, because the larger institutions which are coming to be called universities are composed of very disparate elements. These elements may be classified as collegiate, professional, technological and graduate. The chief distinction between these groups is to be found in the method of instruction. The professional school has a body of students with essentially similar aims and educates them in classes. The graduate department deals with the individual. The college, under the elective system, stands half way between the two in its method. The technological school, with the increasing infusion of liberal studies, is becoming more and more like the college. There is no clear line of distinction between the college and the graduate school. The work in the latter is not always of a higher grade, and to term it "university" as distinguished from collegiate work, leads its teachers and students, in many cases,

> to form an undue estimate of their own importance; to attach a value to what they call original research, independent of the probability that valuable results will accrue therefrom; to consider the muck rake as the chosen instrument of higher education; and to deem a man worthy if he has gotten together a considerable heap of his own sweepings, with relatively little regard either to the value of the contents or the completeness with which he has cleaned up the district assigned to him.

President Hadley suggested that a less invidious distinction would

be that between "collegiate" and "non-collegiate" work. On the whole, the term "university work" might most conveniently be used in the French sense to describe "the organizing and coordinating activity exercised by professors, students and administrative officers."

President Jordan indicated that, as a result of raised entrance requirements and of the elective system, the college course has become a transitional stage between the *Gymnasium* and the university. There is and should be no abrupt line of division. In universities at least the work of the professional schools should be based on collegiate training, and the professional degree should mean at least as much as the doctorate of philosophy. In institutions where the college is strong and college life is vigorous, no part of the four-year course should be sacrificed, although professional studies may be admitted to the senior year. In those institutions where the professional schools are better organized than the college, the fourth year may well be ceded to the professional schools. The heterogeneity of our educational system seemed to the speaker a sign of life and progress.

In the ensuing discussion Professor Munroe Smith remarked that President Hadley treated existing conditions in our American universities as if they were likely to be permanent. The academic colleges, the technological schools, the professional schools and the non-professional graduate schools are certainly at present very different things, and the unity of the university is perhaps, as President Hadley asserts, simply an administrative concept. But if we consider tendencies that are already revealing themselves—*viz.*, the tendency of the graduate school to become a professional school for the training of teachers, state officials, etc.; the tendency of the professional school to provide for training in research; the tendency to demand for the new professions a preliminary liberal training nearly as ample as that demanded for the old professions—we seem to be working toward a form of university very similar to the German except in its greater breadth, in its admission of the new professions to equal rights and dignity with the old. If these tendencies work themselves out, the university will become a body of professional schools, none of which will be purely and simply a

professional school, and all of which will rest on the basis of some liberal collegiate training.

President Hall asserted that training in research is the highest function of the university. He praised the *Privat-Docent* system and inquired how it was working at Chicago University. President Harper replied that at Chicago the experiment had not been very successful; the *Privat-Docenten* were usually called away to professorships in other institutions before they had fairly shown what they could do.

President Eliot explained that there were really but two stages of education: the "sampling" stage, in which the student is endeavoring to ascertain what he is fitted for intellectually, and the university stage when he has found out what he can do and begins to work in his chosen line. This transition may occur at very different ages and at different periods of a man's education. The unit of university organization is not the school or the faculty but the department. A law faculty is simply a law department, its teaching body being strictly comparable with the group of teachers in history or in chemistry. In reply to a question, President Eliot explained the organization of the "sampling courses" at Harvard. Such a course is conducted by the best professor in the department with the assistance of several instructors. The object of the department in conducting such a course is to get into its net the men it wants to deal with later—those who are fitted to go on in a sequence of courses which may last six or seven years. In reply to a further question, President Eliot explained that the "department" is a body of men who have common knowledge and common interest. The larger unit of the "division" includes men who have a large amount of knowledge and interest in common. Professor Shorey of Chicago University inquired whether the sampling was uniformly successful, and whether a series of sampling courses would not bring us back to the old-fashioned general education. He indicated that we could not get rid of the distinction between general and professional education. Professor West of Princeton University inquired whether, if a boy discovered at the end of his preparatory school course that he was fitted for law or medicine, he should not, according to President Eliot's theory, go directly

into the law school or medical school without any collegiate education. President Eliot answered that the college furnished certain studies fundamental to each profession, and that it was in the interest of the high-school graduate to take these courses before entering the professional school. The discussion then diverged into the proper constitution of the college curriculum, with reference to the fact that it trains men not only for the recognized professions, but also for other avocations for which a satisfactory special training has not yet been devised.

The third session was opened by a paper by Professor Bakewell of California on "University publications, including doctor dissertations and scientific journals." The speaker indicated that, with the development of research work in the universities, new provision had become necessary for the publication of results. This provision might be made by a combination of universities, in a sort of university publishing trust; but such a solution seemed at present impracticable, if indeed it were desirable. The other solution is the publication of scientific series by the several universities. The existence of such series is a potent stimulus to creative activity. Their unnecessary multiplication will be checked by the fact that quality is in the long run more profitable, from every point of view, than quantity, and by the limitation of available funds. The ideal solution is a combination of the two methods: each university publishing its own series in certain fields and in others pooling interests. The publication of selected doctor dissertations in such series tends to raise the standard of the doctorate and to encourage condensation, and it facilitates the use of doctor dissertations by subsequent investigators. The speaker insisted particularly on the importance of encouraging brevity in dissertations. A detailed and interesting description was given of the publications of the University of California.

In the ensuing discussion some of the speakers expressed the opinion that the multiplication of scientific series and of journals was becoming a real evil. As regarded doctor dissertations it was urged by several speakers that the requirement of publication flooded the community with dissertations which were in many cases of little value and creditable neither to the candidates nor to the uni-

versities from which they obtained their degrees. Professor Lounsbury of Yale University argued that the function of the doctor dissertation is to train the student himself. If incidentally he does something for science, the dissertation should be published; if not, it should be left in manuscript. On the other hand it was urged by a larger number of speakers that the degree should not be awarded unless the dissertation was fit to print, and that the requirement of publication tended to raise the standard of the doctorate or at least to prevent the lowering of that standard. In reply to a question from the chairman concerning the results reached at Columbia, Professor Munroe Smith explained that it was the practice of the Faculty of Political Science in Columbia University not only to permit the candidate to be examined in his chosen field of studies before a printed dissertation was presented, but to discourage the candidate from printing a dissertation that seemed immature. Such a candidate is advised to take two or three years if necessary, after the termination of his period of university residence, to work out a satisfactory dissertation. The result of this policy has been to lessen the number of dissertations and of doctors. In many cases the candidate, growing more critical of his own work, finds that he has really nothing to say and never completes a dissertation. On the other hand the completed and printed dissertations represent maturer and better work than is usually produced where candidates are forced into early publication.

At the close of this session, on recommendation of the executive committee, the University of Virginia was elected to membership in the association. Other nominations were referred to the executive committee. For the year 1904–05 the presidency of the association was assigned to Johns Hopkins University, the vice-presidency to Clark University and the secretaryship to Columbia University. The representatives of these three universities, with those of California and Harvard Universities, constitute the executive committee for 1904–5.

At the fourth and closing session papers were presented by Professors Hudson of the University of Michigan and Shorey of the University of Chicago on the question: "Are the degrees of bachelor of science, bachelor of philosophy and bachelor of letters

to be preserved or to be merged in the degree of bachelor of arts." Professor Hudson described the experience of the University of Michigan. Half a century ago the demand for a differentiation of studies began to be met by the establishment of parallel courses, until in 1880 there were four such courses, leading respectively to the degree of bachelor of arts, bachelor of science, bachelor of philosophy and bachelor of letters. These courses were found to be too rigid, and an increasing freedom of substitution was introduced until the system became practically one of free election—a system which, in the opinion of the speaker, has worked satisfactorily. At the same time the newer courses, which at first were not equivalent to the old classical course, were so improved as to demand equal preparation and achievement. In 1900, therefore, all the degrees except that of bachelor of arts were abolished. The chief criticisms advanced regarding this change were: first, that the degree of bachelor of science had obtained a character and a reputation of its own which led many of the scientific men to regret its disappearance; and, secondly, that classical education and particularly the study of Greek needed the encouragement of a monopoly of the historical degree. From 1888 to 1900, however, in spite of this encouragement, the proportion of A.B. degrees sank from 51 to 25 per cent. of the total number of baccalaureate degrees awarded.

Professor Shorey asserted that the distinction of degrees was in the main logical and on the whole advisable. The reservation of the A.B. degree for the classical course is the protest of the university against the vulgar denunciation of the study of Greek. It is not true that the results of the classical culture have become so incorporated in our modern civilization that the direct study of the Greek literature has lost its importance. Not only the humanistic movement at the close of the middle ages but the renaissance in the nineteenth century were preceded and accompanied by a more intensive study of the Greek language.

In the general discussion which followed, President Hadley declared that the degree of bachelor of arts meant nothing at present except in connection with the institution which conferred it. In reply to a question, he stated it to be his belief that there is "no

merit in one set of symbols or another set of symbols as compared with the merit of continuity." If an institution is giving but one degree, let it continue to give that one; if five degrees, let it continue giving five. Let every experiment be tried long enough to see what it leads to. Professor West of Princeton regretted that the significance of academic degrees could not be protected. "Whatever was to be said against the old four-year prescribed college course, it was concentrated and definite." As things are, the speaker saw but three policies to follow. One is to go in for the single degree and the free elective system; that is a logical policy. Another is to keep the degree of A.B. for the classical course; to award the degree of B.S. on a literary (not technical) scientific course, and the degree of Ph.B. on the modern humanistic course. The third and the most dangerous policy is one of "wabbling." President Eliot asserted that the degree of B.S. of Harvard University was as good as the degree of A.B., and favored the single degree of A.B. for every combination of collegiate studies. President Wheeler favored the retention of the three degrees of A.B., B.S. and B.L., the A.B. degree standing for a humanistic education which is essentially Hellenic.

The thanks of the association were voted to Yale University for its hospitality. The determination of the place and date of the next meeting was left to the executive committee.

MUNROE SMITH

EDITORIAL COMMENT

The College of Pharmacy

The recent action of the Trustees in giving their approval to the proposal to incorporate the College of Pharmacy of the City of New York in Columbia University, on terms similar to those by which Barnard College and Teachers College became a part of Columbia some years ago, will further tend to extend the influence and usefulness of the University.

The College of Pharmacy is one of the oldest institutions of its kind in this country, and is acknowledged to be the leading institution. It was founded in 1831, and has a strong body of alumni among the

pharmacists and pharmaceutical chemists in all parts of the country. The College now occupies a handsome building recently erected for its use on West 68th Street between Amsterdam Avenue and Broadway. The building is owned by the College, which is self-supporting. By the terms of the agreement, President Butler becomes President of the College of Pharmacy, and the Dean of the College of Pharmacy will hereafter sit upon the Columbia University Council. The educational management of the College of Pharmacy will be subject to the general oversight and direction of the University Council, but it will remain a separate corporation, its finances being cared for independently by its own Board of Trustees. The Superintendent of Buildings and Grounds of Columbia, as well as the Librarian and Registrar, will *ex officio* hold the same positions at the College of Pharmacy.

The instruction offered in the College of Pharmacy is closely related to that offered in the laboratories of the Medical School and of the Schools of Applied Science. The work of the pharmacist is beginning to rest on a broader and more scientific basis, and the introduction of the standards and methods of the University can not fail to contribute largely to the advancement and development of the College.

The Combined Course

In the spring of 1903, as was duly recorded in the QUARTERLY,* the special committee of the College Faculty on the revision of the curriculum proposed to the University Council the question: Should the work required for the degree of bachelor of arts be done entirely under the direction of the College Faculty, or might a part of the work for that degree be done under the direction of a professional faculty? This question suggested, if it did not distinctly raise, the whole subject of the combination of professional or semi-professional with collegiate studies for the first degree. Whether the degree of bachelor of arts or some other first degree shall be awarded on such combined courses and what shall be the range and mode of combination—these are questions which directly or indirectly concern every faculty in the University. They especially concern the Council, not only because it is the only organization in which all the faculties are represented, but also because the system of combined courses was, in a very literal sense, established by the Council itself. The plan originated in 1890 in the College Faculty; but the propositions of that faculty were referred

* COLUMBIA UNIVERSITY QUARTERLY, vol. v, no. 3 (June, 1903), p. 313.

by the Trustees to the President and the Council "with power"; and the combined course was put in operation by a unanimous resolution of the Council.*

At its February meeting the Council decided to consider the wider question suggested by the communication of the College committee. At special meetings held in February and March, it adopted by a very large majority the resolutions which are printed in this number of the QUARTERLY, under the heading of University legislation. In these resolutions the Council recommends that the system of combined courses for the first degree be not only retained but so developed that, after the completion of a two-year college course, the candidate for the first degree shall be permitted to complete the requirements for that degree by work in any professional school except the School of Law. It further recommends that students who are pursuing courses offered by a professional faculty, not as a part of their general education but with a professional aim, shall be primarily registered in the professional school and shall be placed under the jurisdiction of its faculty. This proposed modification of the system is intended to meet the principal objections which are urged against the combined course as now organized—the objection of "divided allegiance," and the accusation that the system is not honest and above-board, in that it classes among the college students those who have really become professional students.

To those who remember the general attitude of the teaching force on the question of the correlation of the college and the professional schools, as set forth in the QUARTERLY fifteen months ago,† this result will not be surprising. It was then already clear that but two plans commanded any considerable support. One-third of the professorial body was in favor of shortening the baccalaureate course by one year; a larger third was in favor of combined four-year courses; the remainder was divided into smaller groups advocating other solutions of the problem. The combined-course group, as the QUARTERLY pointed out, was not only the strongest of all but would most easily become a majority, because the combined-course plan was the second choice of a considerable number who preferred different and reciprocally exclusive solutions.

Meantime the plan of combined courses, which has come to be known in educational discussion as "the Columbia plan," has been

*President's Report, 1890, p. 11.

† COLUMBIA UNIVERSITY QUARTERLY, vol. v, no. 2 (March, 1903), pp. 133 *et seq.*, especially p. 160.

gaining ground throughout the country. About sixteen universities have now adopted it in whole or in part, its most recent adherent being Yale University. It was adopted several years ago at the University of California, and in his Report of December, 1902, President Wheeler speaks of it as follows:

> The explicit adoption of the break between the second and third years of the [college] course, coupled with the requirement of two full years after the break, states unequivocally the University's attitude on the moot question of how to articulate graduate with undergraduate work so as to lower the age of professional maturity, *i. e.*, the age at which graduate or professional study may reach completion. The tendency in New England is toward the shortening of the baccalaureate course to three years. Elsewhere the natural tendency is to solve the difficulty by overlapping the beginning of professional and special study upon the baccalaureate courses, *i. e.*, by telescoping the two together. I believe the latter tendency corresponds more truly to the actual demands of the facts in American education, and offers the genuine American solution.

The Doctorate in Philosophy

Professor Perry's article upon the history of the Ph.D. degree in the United States makes interesting reading. That part of the story which is most creditable to us as a nation is the speedy—one might almost say sudden—development at our better institutions of a very respectable standard. This was possible because the Germans had traveled the path before us, and we had the benefit of their experience. No scholar who had studied in Germany and brought home the coveted label wished to see other men getting the degree on easier terms than he had got it; and thus, as the holders of the degree had everywhere a good deal to do with the conferring of it, professional pride made for solid requirements.

All the more to be regretted is the frequent prostitution of the degree by many institutions through the unworthy bestowal of it *honoris causa*. No doubt it is an easy and inexpensive way to gratify a friend, or recognize a pillar of the church, or please some worthy pedagogue whom his little entourage regards as a great scholar. But a reputable institution should resist the temptation,—just as it would avoid a similar prostitution of its bachelor's degree. Very certainly there is no magic in academic labels. We stand in little awe of them, knowing how vacuous they often are as an evidence either of high attainment or of great capacity. Nevertheless, the laborer is worthy to enjoy his earnings. We need one degree which shall be a trustworthy sign that its possessor has taken a thorough course of graduate study, passed

searching examinations and made a creditable contribution to scholarship; and the holder of that degree, like the properly accredited doctor of medicine, has a right to be protected against quacks. It is to the interest of society at large that he be so protected.

The Study of Comparative Literature

At their February meeting the Trustees accepted the resignation of Professor G. E. Woodberry, to take effect at the end of the academic year. Professor Woodberry was appointed professor of literature in 1891, the general purpose of the Trustees apparently being to establish a professorship of *belles lettres*, much like the famous chair at Harvard, which was successively held by Ticknor, Longfellow, and Lowell. The Columbia plan, however, lay less in the direction of encouraging the study of European literatures in the original languages than of stimulating a general interest in literature. Professor Woodberry continued throughout his whole period of residence to give undergraduate courses in English literature, which were highly appreciated by college students, but he early began to offer to graduate students courses in general European literature, considered rather from the philosophical and æsthetic than from the historical or linguistic point of view. His ability as a critic gave distinction to these courses, and led to the establishment in 1899 of a department of Comparative Literature, with him as its chief officer. In this attractive field of work he was so fortunate as to gather around him a number of able students, whose doctor's dissertations were well received both by scholars and by men of letters, and have been the means of attracting favorable attention to the University from many sources both in this country and abroad. It is understood that Professor Woodberry wishes now to devote his time mainly to literary work.

At their March meeting the Trustees provided for the continuation of the department by the well deserved promotion of Dr. J. E. Spingarn to the rank of adjunct professor, and by the appointment as professor of Mr. J. B. Fletcher, now assistant professor of comparative literature in Harvard University, who had been associated with Professor Woodberry and Dr. Spingarn in the recently established *Journal of Comparative Literature*. Professor Fletcher received the degrees of A.B. and A.M. at Harvard in 1887 and 1889, and after several years of European study returned to offer courses in Italian, Spanish, and English, and more recently in comparative literature, which has been

his chief subject of study for many years. His breadth and accuracy of scholarship, and his success in the historical investigation of problems involving the common elements of several European literatures, make the choice wholly satisfactory. The exact position of the study of comparative literature in the American university is still to be determined and the subject and its methods require further definition; but it is not to be doubted that the new officers of the department will maintain its well-earned prestige. It is to be hoped, moreover, that they will be successful in the difficult problem of relating their field of research more closely to the cognate but better organized and established fields of research in philology, taking that word in its widest sense.

Columbia and the Nation

Mr. Pine's paper in the earlier pages of this number of the QUARTERLY brings out clearly the steady expansion of Columbia as this is made manifest in larger grounds, in more buildings and in ampler equipment; and it indicates briefly the line of development in the future. Professor Tombo's more statistical study deals with this same expansion as it is revealed by the steady increase in the staff of instructors and by the almost startling multiplication of students in the past half dozen years. And in the latter paper attention is called to one of the most interesting characteristics of Columbia,—the fact that it was once only a local college drawing its attendance almost wholly from the city of New York, and that it is now a national university with students coming not only from every part of the Union but also from not a few foreign countries. The constantly increasing number of students attracted to Columbia from long distances and from widely scattered points has been graphically exhibited in a series of maps which will form part of the exhibit of the University at the St. Louis Exhibition.

Additional evidence is to be seen also in two developments, one inside the University itself and the other outside. The first of these is the number of clubs which have been formed among the students in attendance who come from a special section of the country or who have the ties of a common nationality,—the Southern Club, for example, the Japanese Club and the Swedish Society. The second development is the growth in the number of Columbia Alumni Associations, here and there all over the Union, as the graduates of the old college and of the various schools find each other out and band together. Among the more flourishing of these alumni associations are those of

Connecticut, Illinois, Colorado, Montana, Nebraska, California, Western New York, the District of Columbia and the city of St. Louis.

A significant incident of this wider appeal of the University is the recent establishment of the Richard Butler scholarship, which will be open to competition for the benefit of male students born in the state of Ohio. The late Richard Butler in whose memory the scholarship has been established was born in Ohio, although he spent the most of his life in the city of New York; he was one of the founders of the Metropolitan Museum of Art and for many years a trustee of that institution. The winner of the Richard Butler scholarship may enter the College or any of the graduate or professional schools, and for sufficient reasons he may be allowed to hold it a second year, but not longer. The foundation of a scholarship like this, open only to natives of a state many miles distant from the University is likely to strengthen the ties that bind Columbia to the middle west; and the hope may be entertained that the example thus set will be followed by the natives of other states.

THE UNIVERSITY

Religious Interests

Columbia University is now and ever has been a Christian institution of learning. Its seal has inscribed upon it the ancient characters for the name of God, and its motto is "In Thy light shall we see light."

The original charter of King's College provided that public morning and evening service should constantly be performed in the College acording to the liturgy of the Church of England, or such a collection of prayers out of the said liturgy as the Governors of the College might from time to time approve. The catholicity of the College was made clear by the fact that the Governors were forbidden to exclude any person of any religious denomination whatever from "equal liberty and advantage of education, or from any of the degrees, liberties, privileges, benefits, or immunities of the said College, on account of his particular tenets in matters of religion." The same charter included among the Governors the Rector of Trinity Church, the Senior Minister of the Reformed Protestant Dutch Church, the Minister of the Ancient Lutheran Church, the Minister of the French Church, and the Minister of the Presbyterian Congregation in New York. This

breadth of religious sympathy the College jealously guards and eagerly manifests.

Hitherto without dormitories, or any residential academic community, while fostering the religious interests of the students, the work of the University in this regard has been necessarily hampered. The Chaplain has been a rector of a large city parish, and other than to hold daily service, and give an occasional hour for conference with students, pastoral work has not been possible at the University. The religious interests of the University have been thus far confined to the daily chapel service, to the organizing and encouraging of the several religious societies, and to the official sermons preached by eminent divines, representing different churches, on all public occasions of baccalaureate exercises, or anniversary functions.

The Chapel Services.—Now for more than ten years, attendance at chapel, before then compulsory for students of the College only, has been wholly voluntary. In 1903, two hundred thousand dollars were given by two donors, who requested that their names be withheld from the public, for a chapel building. With becoming modesty, these donors request that the chapel be named after the great learned Christian missionary, Saint Paul, rather than have a place of worship always associated with the name of the family by whose generosity it was erected. Never in the history of Columbia University has there been a distinctive building for divine service. It is hoped that the new chapel will be finished and ready for use in October, 1905. Until then, services will continue daily as heretofore. These are held in a room used for many other meetings most of them of a secular sort. There are singing led by a choir of good voices, prayers, the reading of scriptures, and on one day of each week some officer or professor makes a ten minute address. The Chaplain gives a brief talk at services on two other days of each week, and at stated seasons, as in Lent, clergymen are invited to take part in the service, and to address the congregation. The attendance at the Chapel while always representative is never large. Under the conditions, which can not be materially changed until the dormitories are provided, a large attendance at chapel is not possible.

Earl Hall.—Earl Hall is a building for the social and religious life of the students. It is the gift of the late Mr. William Earl Dodge. Its object is best described in the words its donor caused to be inscribed upon its portico—"That religion and learning may go hand in hand, and character grow with knowledge." Though built, equipped

and given by a Christian, it is given for the use of the students—all students of any religion or no religion are equally welcome to all of the privileges of this Earl Hall. Its regulations are of the simplest sort, in number sufficient merely to insure order. The management of Earl Hall is under the Young Men's Christian Association of the University, with an advisory board of professors and officers appointed by the President.

University Religious Organizations.—(1) The Young Men's Christian Association; (2) The Young Women's Christian Association of Barnard College; (3) The Phillips Brooks Society of Teachers College; (4) The Churchmen's Association; (5) The Newman Club; (6) The Hebrew Bible Study Class. The names of these organizations will indicate the special church affiliation or religious adherence of the members, while the aims and character of the work done are similar in them all. Thus young men and young women are developed into earnest God-fearing characters, are taught God's Holy Word, and are trained to be unselfish and missionary in spirit and life. Every one of these societies exhibits activity and strength, and each is accomplishing in a good degree what it aims to do.

Thus are the religious interests fostered at Columbia University today as ever. The material equipment of these interests is already in fact and in promise the equal of any, and the superior of most of the departments of the University. Any young man of any professed religion, or of no confessed creed, is welcome within the walls of Columbia. The seeker after truth, whatever be his bent or predilection, can do his work here untrammelled. The religious profession of instructor or student is not taken account of by the University. Nevertheless Columbia is Christian, and does all it can to develop the religious interests of all intrusted to its guidance and care. In the near future it intends to do much more.

The Library

With the opening of another academic year the responsibility of the Librarian of Columbia University will be extended to cover the administration of the libraries of all institutions affiliated with Columbia, as well as all department libraries. This will place under general and unified supervision the collections of Columbia and all its departments of instruction, of Teachers College (including the Horace Mann School and the Speyer School), of Barnard College, of the College of Physicians and Surgeons, and of the College of Pharmacy.

It is possible therefore, to grant extended opportunities to those desiring to familiarize themselves with the various froms of library work and administration. Accordingly Columbia will receive five apprentices for the coming academic year. No formal entrance examination will be required, but preference will be given to those who are college-bred, and the minimum educational preparation must be at least the equivalent of two years' work in a college of approved standing. The work of the apprentice-year will be divided between the following departments: Order, accounts and accession; cataloguing and classification, periodicals and binding, loans, and general bibliography. No compensation will be given other than the personal instruction, the opportunity to observe, the opportunity for practice-work under competent supervision; and the fact that, although no position is guaranteed, in selections for the staff of this Library preference will naturally be given to those who have had this training and experience. The work of apprentices will be under the general direction of Miss Harriet B. Prescott.

In the bibliographical room two noticeable exhibitions have been given. The first was of old and modern artistic bookbindings, from the collection of Mr. Samuel P. Avery, and was held during the months of November and December, attracting more than two thousand visitors. The other included illuminated manuscripts of the middle ages, largely from the collection of Mr. J. P. Morgan, and was held during the first three weeks in March. Reference to the first exhibition has already been made in the QUARTERLY. A very valuable part of this collection, about one hundred and thirty volumes in all, Mr. Avery presented to the Library. The greater part of these are books about the history and art of book-binding, with reproductions of beautiful and historically interesting bindings which are now in public museums or in famous private collections. Many of these volumes were bound by the leading craftsmen of France, England and America. This last proof of the continued remembrance and intelligent generosity of Mr. and Mrs. Avery is a valuable addition to the Library, since the outward decoration of books plays an interesting *rôle* in the history of Fine Arts.

Of unusual educational importance was the exhibition of illuminated manuscripts, probably the most magnificent display of its kind ever made in America. There was a fairly continuous collection, from the sixth century to the sixteenth. Often the student could see not only

the very best specimens of the age but mediocre productions as well. A French art critic who was visiting this country and saw this exhibition, expressed surprise that we exhibited a few poor specimens side by side with manuscripts which national museums of France, Italy or England would have been proud to own. But the aim was to show the student the difference in manuscripts; and the difference between Italian, French, Flemish, German, and English paleography and miniature-art in different centuries.

From Mr. J. P. Morgan's library alone came twenty precious specimens, some of them of international fame: among the most noteworthy being a Flemish manuscript of the fifteenth century, a Book of Hours, unquestionably illuminated by a member of that great school of artists which produced the most famous manuscript in existence, the *Brevarium Grimmani,* now in Venice. We were so fortunate as to have loaned us two more manuscripts of the same school; one being the famous text illuminated by David Graert for the daughter of Ferdinand and Isabella, now in possession of Mr. White of Brooklyn. The other was a set of miniatures now owned by Mr. Warburg of this city. Besides those received from Mr. Morgan, valuable loans were made by Mr. Avery, Dr. Morgan Dix, Mr. Plimpton, Mr. H. W. Poor, Mr. Felix Warburg and The General Theological Seminary. Nearly three thousand persons came to see this exhibition. About one-half of these were officers and students of the University.

The value of this exhibition can scarcely be overestimated. It gave the students an insight into mediæval culture which they could not have gained otherwise in the same vivid way. It also brought the Library into closer touch with a great many residents of this city and the immediate vicinity who from now on will feel a more direct interest in Columbia than has been possible heretofore.

During the last few months some very important purchases have been made by the Library. Among these the Jarchow Library deserves special attention. The collection consists of some fifteen hundred volumes, almost entirely standard authors on German philosophy and the history of German literature. We have also completed a large number of periodical sets and serial publications, and have filled a great many lacunæ in mediæval history, comparative literature, and the history of Russia, China and Japan. Just at present an effort is being made to complete systematically our collection on anthropology, and our already somewhat remarkable list of books by and about Kant.

The Purchasing Committee of the Avery Library have bought the "Atlas des anciens plans de Paris" (1880, 3 volumes folio), being the reproduction in fac-simile of all the rare original maps which are indispensable for the proper comprehension of the topographical development of the city of Paris. This is part of the great "Historie générale de Paris" begun in the middle of the nineteenth century. It has also bought the fine "Plan du Département de la Seine" (12 plates, grand folio), which was published by Barrière in 1895. These maps with many others of less importance supplement perfectly the strong collection of Paris books already in the Avery Library, and make it, with the single exception of the *Hôtel Carnavalet,* one of the most convenient places in the world for the study of the topography of Paris.

The topographical development of cities is one of the most serious questions before the American public, involving as it does vast financial and architectural problems. Some public library should certainly specialize this subject. There is no library which can do this work so conveniently as the Avery. It is expected that Mr. and Mrs. Avery and their committee will give the subject a fair share of attention in future selections.

The Gymnasium

The work of the Gymnasium during the past year has been characterized by great activity and the introduction of several innovations. The use of the gymnasium reached such proportions that it was found necessary to add two hundred new lockers, there being now 1804 lockers in the equipment. The attendance in the department during the winter months averaged 437 a day; some days more than 600 different individuals were present.

Much emphasis was placed on the physical examinations of the students. The cards were revised and a new gymnasium manual published, which contained among other items a prescription of exercises suited to the needs of the individual as revealed in the physical examination. The gymnasium instructors have given much time to teaching these prescription exercises, and the students have manifested much interest in this part of the work.

The efficiency of the required gymnasium classes has been greatly increased by making a number of divisions, instead of attempting to teach large classes. All the apparatus used for class instruction was moved to one end of the gymnasium in order to facilitate instruction in small squads. Another very important innovation consisted in the organization of a corps of forty volunteer leaders who assisted in the

instruction of the required classes. These volunteer squad leaders formed an organization called the Columbia Gymnasium Leaders Corps Association. They met once a week for special instruction and by their faithful service served to heighten the efficiency of the gymnasium work.

These efforts to make the required gymnasium work more interesting and more beneficial have brought about a marked change in the attitude of the students towards this requirement. At the beginning of the year, the majority of the students regarded the required work as unnecessary, and many of them were anxious to be excused from it. By the end of the first half year, the attitude of the men changed; they enjoyed the work and appreciated the benefits derived. This interest was shared by upper-classmen, many of whom asked permission to join the required classes, with the result that in one class the attendance was double the number registered. All the other classes included a number of volunteers who attended regularly.

The attendance on the optional classes held daily in the late afternoon has also been very encouraging. It increased steadily throughout the year, and during March and April the attendance was double that during October and November. A special class was organized for officers of the University, which met regularly three afternoons a week throughout the year and was well attended, the President and many of the professors and instructors manifesting much interest in the work. This class met in the small gymnasium adjoining the Gymnasium Director's office and was instructed by the Director.

All students engaging in athletic sports are required to be examined by the Director and secure a pass-card before taking part in any competition. This regulation is of the utmost importance. During the past year five cases of heart disease were discovered and pass-cards refused. Eight other students were given provisional cards, but were required to submit to frequent examinations.

Faculty of Medicine

General.—The house staffs of the various hospitals in this country are recruited from the graduating classes of the medical schools upon competitive examination. Examinations are held during the months of March, April and May. Up to the date of going to press examinations have taken place in the following hospitals.

A list of the successful candidates from the College of Physicians and Surgeons is appended. Unless otherwise stated the hospitals mentioned are in the City of New York:

St. Luke's Hospital—Wilbur Ward, F. V. Hussey, A. R. Moffit, E. G. Littell, A. D. Mittendorf, F. N. Chessman.

Presbyterian Hospital—R. A. Cooke, Edward Cook, E. St. J. Ward, H. H. Mason, G. H. Lathrope.

St. Vincent's Hospital—M. F. Black, A. M. Bell, E. C. Fassett, D. J. Flynn, W. J. O'Leary, T. H. Cherry.

City Hospital, Blackwell's Island—M. D. Thomas, J. B. Talmage, A. L. Sherman, O. T. Avery.

J. Hood Wright Hospital—R. H. Breed, H. N. Moeller, W. C. Bartram, Henry A. Craig.

Lying-In Hospital—R. N. Prentiss, M. D. Thomas. Alternates: C. T. Stevens, C. E. McNenney.

Bellevue Hospital—C. K. Stillman, W. C. Cramp, J. T. Pilcher, J. F. Bowman, J. O. Woodruff, Jr., H. L. Hooker, R. W. Carter, J. D. Peters, C. G. Bandler. Alternate: J. M. Long.

German Hospital—M. J. Myres, F. E. Neef, W. F. Bopp, T. J. Schuck. Alternates: Louis Fichter, H. E. Kudlich.

Post-Graduate Hospital—L. P. Runyon, T. O. Vanamee, E. J. Smith.

Mount Sinai Hospital—A. E. Cohn, Max Taschman, J. J. Meyer, Sol. Wiener, Louis Jacobs.

St. Mark's Hospital—E. J. Leavitt.

Harlem Hospital—G. H. Hibler, Samuel Blauner.

New York Hospital—Edward Cussler, J. C. Greenway, D. H. M. Gillespie, H. W. Lathrop, W. F. Burrows.

Roosevelt Hospital—W. J. Clark, Jr., B. W. Paddock, T. L. Saunders, F. D. H. Coerr, Albert VanderVeer, Jr., J. S. Thomas, T. A. Dingman, P. H. Ringer. Alternate: B. W. Dudley.

Hudson Street Hospital—G. D. Hale, E. T. Hull.

French Hospital—C. W. Walser.

General Memorial Hospital—L. L. Miner.

Gouverneur Hospital—P. J. Hamill, J. D. Hastie. Alternate: E. O. J. Eytinge.

Lincoln Hospital—C. C. Kimball, B. G. Allen, C. W. Woodson.

St. Francis Hospital—R. H. Dieffenbach, C. D. Cleghorn, S. W. Wynne, W. H. Whiton. Alternates: C. H. Weir, R. F. Ward.

Randall's Island Hospital—S. L. Jeffrey, P. G. Hood.

St. Mary's Hospital, Brooklyn—M. T. McSheehy, E. J. Murphy, W. E. McCollum.

St. John's Hospital, Brooklyn—R. L. Moorhead, Jr.

Brooklyn Hospital, Brooklyn—W. H. Lohman, J. T. Rose.

German Hospital, Brooklyn—B. S. Harris.
Norwegian Hospital, Brooklyn—Charles Eastmond.
S. R. Smith Infirmary, Staten Island—C. A. Holmes.
Jamaica Hospital, L. I.—J. C. Gain.
St. John's Riverside Hospital, Yonkers, N. Y.—William Blancard.
Rochester City Hospital, Rochester, N. Y.—J. C. O'Connor.
Paterson General Hospital, Paterson, N. J.—E. D. Royall.
Newark City Hospital, Newark, N. J.—C. R. O'Crowley.
St. Michael's Hospital, Newark, N. J.—G. H. Meyer, F. H. David.
St. Barnabas Hospital, Newark, N. J.—G. H. Schenck. Alternate: F. H. Wilson.
Orange Memorial Hospital, Orange, N. J.—Julius Levy.
Bridgeport Hospital, Bridgeport, Conn.—C. H. Sprague.
Rhode Island Hospital, Providence, R. I.—H. H. Armington, R. C. Robinson.

Department of Genito-Urinary Diseases.—The course of instruction during the present year has consisted of clinical lectures by Professor Taylor in the amphitheater of the Vanderbilt Clinic, and section teaching by Dr. Hayden, at the Vanderbilt Clinic and Bellevue Hospital. The course of sixteen clinical and didactic lectures given by Professor Taylor to the third year class, embraces the etiology, pathology, general course, symptoms and treatment of the various affections and diseases of the genito-urinary tract. At these lectures a large number of carefully selected clinical cases are shown and examined, thus giving the students a vast amount of practical information, combined with didactic teaching. The section teaching by Dr. Hayden at the Vanderbilt Clinic consists of ten lessons for each student. The class is divided into eleven sections of about twenty men each. As each case is presented to the section, the symptoms, diagnosis, and treatment are fully considered, both in a clinical and didactic manner, and the student is encouraged to examine cases, make diagnoses, and outline plans of treatment. The student is also instructed how to obtain urethral and glandular secretions from the patient, and how to prepare them for microscopical examination. Specimens illustrating the various diseased conditions of the genito-urinary tract are shown, and the ordinary chemical and microscopical tests to differentiate such conditions are applied. When it is deemed necessary, the demonstration is supplemented by charts, casts, photographs, and also by specimens. Once a week an extra hour is devoted to the demonstration

of special instruments, together with instruction in the use of the electric cystoscope and urethroscope for the visual examination of the bladder and urethra, as well as catheterization of the ureters. In this manner each section has the opportunity of seeing a large variety of cases, about three hundred being shown during the year.

Hospital clinics are given at Bellevue Hospital by Dr. Hayden once a week throughout the college year, each section attending for about one month. The various genito-urinary operations are performed before the section, and bed-side instruction is given to the student in the various forms of genito-urinary disease, as well as the post-operative treatment of cases.

Department of Gynecology.—The instruction in gynecology covers the last two years of the course. Following the year's recitations in obstetrics, the student attends recitations in gynecology once a week in sections during the first half of the third year. These recitations prepare him for the lectures in gynecology which occupy the second half of the third year and are delivered to the class as a whole. These lectures, given three times a week, two being didactic and one clinical, deal with the practical subjects of the specialty, and an effort is made at each clinic to present patients illustrating the conditions discussed at the two preceding didactic lectures. These patients are examined and the diagnoses made, by as many students as possible. During the fourth year each student is given twelve lessons in a practical course in gynecology, in which he is trained in methods of diagnosis and treatment of cases as they present themselves at the clinic. In addition to this, each student is required to attend in a small section, twice a week for two weeks, an operative clinic at the Roosevelt Hospital. At this clinic the ordinary minor gynecological operations are performed, and as the students stand about the operator, they gain a knowledge of the details of different operations, impossible in any other way. Once a week during this last year of their course the students are invited to a clinic at the Roosevelt Hospital at which the major gynecological operations are performed.

Department of Laryngology.—The end of the present college session marks the retirement of Professor George M. Lefferts from the chair of laryngology, a position which he has filled for the last thirty years. During this time he has collected a magnificent museum of teaching apparatus with various specimens, models and charts pertaining to the subject of laryngology, all of which he has presented to the college and which has been accepted by the trustees. The retire-

ment of Professor Lefferts was fittingly celebrated at his last lecture on March 28 before a large audience, by the presentation to him of two loving cups, one by the class of 1904 and the other by his staff of clinical assistants, the presentation addresses being made by Mr. George Lathrope, president of the graduating class, and Dr. W. K. Simpson. Professor Lefferts replied in a most feeling address, in which he reviewed his many years of successful work—from a very small beginning to the present condition of a well organized teaching clinic.

Dr. William Kelly Simpson has been promoted by the Trustees from an instructorship to the professorship of Laryngology to succeed Professor Lefferts. Dr. Simpson is an alumnus of the College of Physicians and Surgeons, having received his degree of doctor of medicine in 1880. He served for two years as an interne in the Presbyterian Hospital. He has been attending physician in the out-door department of the New York Foundling Asylum and in the throat and nose department of the Northern Dispensary; and attending surgeon at the Metropolitan Throat Hospital and in the throat department of the out-door department of the Presbyterian Hospital. He is attending surgeon in the nose and throat department of the New York Eye and Ear Infirmary, and consulting laryngologist to the Seton Hospital, the St. John's Hospital of Yonkers, and the New York Foundling Hospital. He has recently been appointed consulting otologist at the Presbyterian Hospital. He was formerly instructor in laryngology in the New York Post-Graduate Medical School. He has published numerous papers on the diseases of the nose and throat. He is a member of the New York County Medical Society, the Greater New York Medical and Surgical Association, a fellow of the New York Academy of Medicine, a fellow of the American Laryngological Association, and for several years has been the secretary of the executive committee of the Congress of American Physicians and Surgeons. Dr. Simpson entered the service of the University in the year 1887 as a clinical assistant. He became instructor in laryngology in 1898, and the chief of clinic in that subject in the following year.

Dr. Samuel W. Thurber has been appointed chief of clinic vice Dr. Simpson promoted.

The course of instruction in laryngology is confined to the fourth year, and consists of a course of weekly didactic lectures given by the professor in charge, and a systematic course of section teaching by the chief of clinic and an instructor. For the latter purpose the class is

divided into eight sections, and each section receives twelve lessons. In the section teaching it is the aim to perfect the student in the technique of examination of the upper respiratory tract, *viz.*, the anterior nares, posterior nares, pharynx and larynx, and to supplement this by the demonstration and study of the various pathological conditions which may present themselves, each student personally studying the cases under the direct supervision of the instructors. Some idea of the amount of clinical material used for this purpose may be gained when it is mentioned that for the seven sections just finished from the beginning of the session, eighteen hundred and seventy-one patients were used for practical instruction.

Department of Neurology.—During the past year from September 26 to February 6 Professor Starr gave lectures once a week upon the subject of diseases of the brain and insanity. Localization of brain functions, aphasia, paralysis, disturbances of sensations of sight and of hearing and of the cranial nerves were fully discussed and illustrated by lantern-slides. The subjects of apoplexy from cerebral hemorrhage, embolism and thrombosis, of cerebral atrophies of children, with maldevelopment of the brain, of tumors of the brain and abscess of the brain, of acute encephalitis, paresis, multiple sclerosis and syphilis of the nervous system were also discussed. Each of these lectures and subjects was illustrated by the presentation of patients in the clinic, the clinic on Friday being supplementary to the lecture of Wednesday, fifty-six patients being shown during this period as illustrating conditions that had been lectured upon. The subject of insanity was treated in five lectures, the symptomatology of mental disease, the diagnosis of the different types of insanity, and the prognosis and treatment being discussed in the lectures, and four clinics being held by Dr. Peterson at which twenty-four patients were shown illustrating conditions of melancholia, mania, dementia, paresis and paranoia.

From February 5 to May 6 the lectures were wholly clinical. Professor Starr showed at these clinics patients suffering from spinal cord affection: anterior poliomyelitis, syringomyelia, locomotor ataxia, lateral sclerosis and myelitis; various forms of multiple neuritis and lesions of single nerves; children suffering from chorea; ten patients suffering from epilepsy; and a large variety of functional nervous affections. As the fourth year students, who attended these clinics, had during their third year heard didactic lectures upon the subject of spinal cord disease and disease of the nerves, they were prepared to understand

and appreciate the clinical demonstration of these diseases. Thus in the course of the year the entire subject of nervous diseases was covered at the clinics, and the subject was treated in a definite and progressive order. This is possible at the Vanderbilt Clinic on account of the large amount of material which is at the disposal of the nervous department—about two thousand one hundred new cases being registered during the past year in addition to about two thousand former patients who have made visits to the clinic.

The didactic and clinical lectures were fully illustrated by lantern slides showing the pathology and pathological anatomy of the nervous system. The department has in its possession over six hundred slides illustrating types of nervous disease, and demonstrating both gross and microscopic lesions. Many photographs of patients presenting visible deformities and clinical conditions are also at the disposal of the Department, such collection having been accumulated by the constant photographing of patients at the Vanderbilt Clinic, which has been in progress for the last ten years. In addition to this instruction carried on by the Professor, the students have been taught by the Chief of Clinic, Dr. Pearce Bailey, and the Instructor in Nervous Diseases, Dr. Richard H. Cunningham, in the subjects of the examination of patients suffering from nervous diseases, electro-diagnosis and electro-therapeutics. This instruction is given to sections of the class, twelve or fourteen men being instructed in a section, each of which receives twelve hours of such instruction. This instruction is entirely clinical, patients being utilized to demonstrate the various conditions studied and the students being allowed to examine and diagnosticate cases of nervous diseases.

In the Vanderbilt Clinic twelve assistants have been at work in the Department of Nervous Diseases, and these men have not only studied the cases coming to the Clinic, but have taken careful histories in books prepared by Professor Starr for the recording of each type of nervous disease. A mass of clinical material has been accumulated in this manner, and some valuable contributions to the literature of nervous diseases have been made by various assistants at the Clinic. Dr. L. Pierce Clark has published a study of one thousand seven hundred and fifty cases of epilepsy observed in the Clinic. Professor Starr has published a review of these cases together with two hundred and fifty private cases of epilepsy; a study of chorea, based upon one thousand four hundred cases observed at the Clinic; a study of "Cerebral atrophies of children," based upon four hundred cases observed at

the Clinic; and an article on "Arterial diseases as the cause of nervous affection," based largely upon clinical material. Drs. L. Pierce Clark and Thomas P. Prout have done considerable pathological work in a small pathological laboratory attached to the Department of Nervous Diseases, and at present have several important pieces of pathological work there under way.

Department of Obstetrics.—The instruction in obstetrics begins with the second year of the course and comprises recitations in sections once a week throughout the whole of the second year; lectures to the whole class during the first half of the third year; and residence for two weeks at the Sloane Maternity Hospital during the fourth year. The recitations during the second year give each student a thorough groundwork in the principles of obstetrics, special attention being paid to the anatomy and physiology of the female generative organs, and to the mechanism of labor. These recitations prepare the student for the lectures of the third year which are devoted chiefly to the practical phases of the subject. During the fourth year the student is brought into actual contact with obstetrical practice by living for two weeks at the Sloane Maternity Hospital, situated on the college grounds. With its large service of over fourteen hundred deliveries per year, this hospital offers each student the opportunity of observing and examining for himself the normal and many of the abnormal conditions in pregnancy, labor and the puerperium. In addition to this each student is required to deliver at least one patient himself. During his residence in the hospital the student makes daily rounds with the resident staff and is thoroughly drilled in the care of mother and baby during the puerperium.

Department of Pathology.—The Department of Pathology, to which are linked in administration the sections of instruction and research in bacteriology and normal histology, has this year drawn very heavily upon the resources of its capacious laboratories, as well as upon the loyalty of its instructors. The lengthening of the courses and the readjustment involved in the revised curriculum, have made necessary the practical laboratory instruction of over one thousand men, about equally divided in one-half and one-quarter year courses. The undergraduate course in general and special pathology has been lengthened and its scope expanded, and in this, as well as in the course in clinical pathology, and in the research work which is carried on in both these lines, the impulse of modern pathology to avail itself of the wider outlooks of general biology and physical and physiological chemistry is

striking and encouraging. The course in normal histology had been revised throughout by Professor Bailey, the embryological aspects of the subject being more adequately emphasized than has been possible hitherto.

While the administration of the conjoined laboratories remains as formerly under the general direction of the Professor of Pathology, the recent appointment of Drs. Hiss, Hodenpyl, Wood, and Bailey to professorships, respectively of bacteriology, pathological anatomy, clinical pathology, and normal histology, fosters the free development of these sections of instruction and research under their independent leadership. The new outlooks in studies relating to immunity which mark the drift of the pathological research of the present, have largely influenced the experimental work in several lines which are under way in the Department, especially under the direction of Professor Hiss and Drs. Norris and Wadsworth. Professor Hiss has made extended studies on the fermentative activities of micro-organisms isolated from cases of dysentery and allied intestinal disease, and which are supposed to be of etiological significance in these pathological conditions. Light has been thrown upon differences in the physiology of these organisms, and a separation into fairly well marked species or varieties has been made possible. Professor Hiss has also been investigating the agglutinating peculiarities of the dysentery organisms, and, especially by absorption experiments leading to the removal of specific agglutinins from immune sera, has been able to strengthen and largely confirm the groupings of these organisms indicated by their fermentation reactions. Professor Hiss has also studied the effect of heat on the agglutinins of dysentery and typhoid immune sera and on the agglutinable substances of the dysentery and typhoid bacilli, and has been carrying on experiments looking toward the production in quantity of specific soluble toxins in artificial culture media, particularly in the case of the typhoid bacillus.

Dr. Wadsworth's studies on the agglutination of pneumococcus have been recently published, and he has just completed a long series of studies concerning the factors taking part in the development of pneumonia. These researches are in press, and will shortly appear in the *American Journal of the Medical Sciences*. Dr. Wadsworth is now engaged in a series of problems relating to immunity to pneumonia in man and the lower animals, and also in methods of capsule staining. Dr. Norris has concluded the first part of an extended research on bacterial precipitins, which will presently be published in the

Journal of Infectious Diseases. The second part of this study is now under way. Dr. Ditman, in connection with Professor Hiss, is investigating cultural differentiations of streptococci derived from various forms of infection, and with Professor Gies is carrying on a series of studies on eclampsia. Dr. Arnold Knapp is engaged in studies on the etiology of trachoma. Dr. Langmann is continuing a study of the hæmolytic capacities of snake venom. Under the direction of Dr. S. J. Meltzer, Drs. Salant and Auer, research fellows of the Rockefeller Institute, are engaged in a series of studies in pathological physiology. Professor Prudden is completing the revision of the seventh edition of Delafield and Prudden's "Pathology." Professor Wood is preparing a text-book on "Clinical diagnosis"; and Professor Bailey, a student's manual of "Normal histology." All of these books will be published in the autumn. Volume ix of the Studies from the Department of Pathology is nearly completed.

Department of Pharmacology and Therapeutics.—Professor Herter has been spending the present year in Europe on leave. He has been engaged in research work with Professors Ehrlich and von Noorden in Frankfurt, and also in making preparations for the establishment next year of a course of lectures and laboratory work in pharmacology.

The pharmaceutical laboratory recently fitted out under the management of Drs. Smith Ely Jelliffe and Walter A. Bastedo, is capable of holding at least fifty-four students at one time, and is provided with apparatus for carrying on all the simpler pharmaceutical experiments. The course in the laboratory, as outlined for 1903–1904, includes the handling of between one hundred and fifty and two hundred different pharmaceutical products, and the students of the second year have made up about one hundred complete prescriptions, illustrating all the different galenical preparations used in ordinary medical practice. The object of this course is not to train students of medicine to be pharmacists, but to make them well acquainted with the drugs of the Pharmacopœia, and to enable them to combine drugs intelligently in future medical practice. In addition to the laboratory work a new course of lectures on the principles of materia medica has been given to the students of the second year by Dr. Jelliffe. In this course particular attention is paid to the origin of drugs, their chemical and physical properties, an elaboration of the principles which determine the active constituents of plant drugs, and the conditions modifying such constituents, as exhibited in certain aspects of the drug trade. Furthermore, special stress has been put on the chemical composition of the

active constituents of drugs, as a preparation for the better understanding of the pharmacological action of remedies in general. The course has further considered the avenues by which remedies may be introduced into the body, advantages and disadvantages of these, time of absorption and modes of elimination,—in other words, it has discussed the conditions of absorption up to the point where a drug may be considered to exhibit its activity on the organism.

Inasmuch as a part of the third year class had received one series of lectures only from Professor Peabody, it was deemed advisable to round out the subject of materia medica by a second course of lectures which would complete the series begun by Dr. Peabody. These lectures accordingly have been given to the third year students by Dr. Jelliffe. They have considered in detail those topics which had not been discussed by Dr. Peabody in the second year.

One other new feature of the course has been the recitations of the students of the second year conducted by Drs. Bastedo and F. S. Meara on the more important remedies in active use among practitioners.

Department of Physiological Chemistry.—The Trustees have decided to merge the department of general chemistry at the College of Physicians and Surgeons into the University department of physiological chemistry. Hereafter instruction in general chemistry at the College of Physicians and Surgeons will be given by Professor Gies and assistants. Professor Gies has lately been assigned to a seat in the medical faculty. In addition to the courses now given, a course in toxicological chemistry will be offered next year by Professor Gies and Dr. Posner.

Last January a formal poll of the alumni and patrons of Pennsylvania College was taken for their preference for President of that institution. Professor Gies, who is a graduate of Pennsylvania College, received the largest vote, but declined the election proposed by the nominating committee of the Trustees.—Dr. A. N. Richards, who has very faithfully and efficiently served the department since its organization, first as assistant, lately as tutor, will next year be instructor in pharmacology and will assist in the establishment of the new work in that department. During the present year Dr. Richards has been engaged in special studies in pharmacology at the Bellevue Hospital Medical College. Dr. G. M. Meyer, acting assistant, is one of the official reviewers for the *Biochemisches Centralblatt.*

The chief feature of the advanced work of the department throughout the year has been the increase in the number of investigators.

Volume I of the "Biochemical researches," comprising forty publications from the department during the past five years, has lately been issued by Professor Gies. Volume II is now in course of preparation. During the next summer the research equipment of the department will be considerably increased. This year Bert Russell, A.M., of the University of Minnesota, and E. R. Posner, M.D., of the College of Physicians and Surgeons, have had the privilege of fellowships in physiological chemistry. Drs. A. N. Richards and William Salant have been conducting researches in this department under the auspices of the Rockefeller Institute. Drs. W. S. Schley, John Howland and N. E. Ditman and Messrs. H. M. Hays, Davenport White, Reuben V. Henberg, W. J. Heimann, W. C. Uhlig, and W. J. Hickson have been carrying on researches along clinical lines. The members of the teaching staff have been engaged, as usual, in a variety of investigations. Some of these have already been reported during the year before various biological societies. The papers issued during the past few weeks have described the metabolic effects of blood-letting (Dr. Hawk and Professor Gies), the chemical properties of various logwoods (Mr. Gruenberg and Professor Gies), and biochemical notes on the connective tissue mucoids (Dr. Posner and Professor Gies).

Professor Gies was recently reelected secretary of the Society for Experimental Biology and Medicine and also reappointed consulting chemist to the New York Botanical Garden. Researches have lately been carried out in the Garden, under his direction, by Miss Julia Emerson and Messrs. H. D. House and W. T. Horne. Throughout the year the department has been greatly favored in its researches by the officers of the New York Botanical Garden and the New York Zoological Park, who have freely supplied an abundance of valuable material.

Department of Physiology.—During the present year the Department has given instruction to 263 candidates for the degree of M.D.—113 of the first year and 150 of the second; 8 candidates for the degree of Ph.D.; and 3 candidates for the degree of A.M.

Much interest has been aroused by the new required course in practical physiology for students of medicine, which was begun on February 1. The first year's class is divided into six sections of from fifteen to twenty-two men each, and each section devotes three consecutive hours each week to the work in the laboratory, under the guidance of two or three instructors. In performing the simpler experiments the men work in pairs, while in those more complex it

is found that five or even six men can advantageously work together, the duties of each being assigned him by the instructor. The aim of the course is to give each student an opportunity to perform for himself the fundamental physiological experiments. The success of such a course given to students who have had no previous training in a physiological laboratory, and whose aptitudes for experimental work vary greatly, depends on many factors, prominent among which are a wise choice of experiments, and the careful preliminary planning of the details of the work. Much thought has been given to these factors in the present course. The selection of experiments has been guided by the desire to give to the students a clear idea of the scientific basis of medicine, in so far as this concerns physiology. Each experiment chosen has a meaning of its own and a recognized bearing on broad medical science. Those of remote interest to all except technical physiologists, those of doubtful interpretation, and those in which the desired results are uncertain, have been excluded. For the present half year, which covers one-half of the course in physiology, the subjects studied in the laboratory comprise blood, circulation, respiration, absorption and secretion. The course will be continued through the first half of next year by the same students, during which time the work will cover the physiology of muscle and nerve, the central nervous system, and the special senses.

Professor Curtis is devoting much time and energy to the work of the deanship of the medical faculty. Besides its duties in immediate connection with the College of Physicians and Surgeons, the office carries with it representative service on the Boards of Trustees of the Roosevelt Hospital, the Vanderbilt Clinic, and the Sloane Maternity Hospital.

At the March meeting the Trustees of the University promoted Professor Lee from the adjunct professorship to a professorship of physiology. Professor Lee's work was interrupted for several weeks by reason of serious illness, during which time the burden of his duties fell upon Drs. Burton-Opitz and Emerson.

Dr. Burton-Opitz has been continuing his work on the viscosity of the blood. The portion of his research on the influence of alcohol on viscosity is nearly ready for publication; that on the relations of the thyroid gland to viscosity is well under way. He has been appointed to review the American literature for the *Centralblatt für Physiologie* and the *Biochemisches Centralblatt*. For the coming summer Dr. Burton-Opitz offers three courses, one in elementary

physiology, one in advanced mammalian physiology, and one in general physiology. Dr. Emerson has recently completed his studies on the experimental decapsulation of the kidney, and an account of the work will shortly be published. With Dr. Charles Norris he has been investigating a peculiar epidemic disease occurring in frogs, and has obtained very interesting results in a hitherto little studied field of comparative pathology. Besides the research work by the various members of the staff, investigations on a variety of subjects have been carried on during the year by Drs. J. H. Claiborne, E. Coburn, R. C. Kemp, I. Levin, G. M. Parker, R. Weil, and T. P. Prout.

On request Dr. Shearer has been granted a leave of absence for the remainder of the academic year, and will spend the time in Europe.

Department of the Practice of Medicine.—The curriculum in the Department of Practice has been materially changed within the past two years, and further changes are in contemplation, the purpose being to bring the students, especially in the fourth year, more closely into contact with the patients themselves. The course of study in this department may be briefly summarized as follows: At the beginning of the second year the student first takes up the practice of medicine. One recitation a week is held throughout this year, the class being divided into sections; lessons are given out from an approved text-book, and comprise the simpler types of disease, the purpose being to familiarize the student with the general aspect of disease. In these recitations the subject is elucidated by means of pathological specimens, charts, diagrams, etc., and it is aimed to make the exercises largely explanatory. In addition to this in the second year there are lecture demonstrations by another instructor covering the general ground of the methods of diagnosis of disease. In this course the student is taken over the method of history taking, examination of patients, the methods of studying the various functions of the body at the bedside. Free use is made of lantern slides, charts, and diagrams, and suitable patients are demonstrated, and special emphasis is laid upon physical diagnosis. This course is given to sections of one-half the class at a time. In the third year the student is taken over the entire subject of internal medicine by means of an approved text-book, from which lessons are given out, and upon which recitations are heard; these also are, as far as possible, illuminated by demonstrations and specimens, and reviews and frequent examinations are held. It is expected that by these means the main facts of the practice of medicine will be acquired, and a framework established upon which subsequent studies

may be built up. Practical physical diagnosis is taught in this year in small sections of not more than ten men each in the Vanderbilt Clinic, Roosevelt Hospital, and in the new dispensary of Bellevue Hospital, and the wealth of ambulant material these furnish gives abundant opportunity for demonstrating the physical signs in all the diseases ordinarily met with. It is expected that the theory of physical diagnosis will be learned in the second year so that in this third year course the time of the instructor need not be taken up, other than to a very slight extent, in demonstrating the signs of the normal chest and abdomen. In addition, the student during this year attends lectures by the Professor of the Practice of Medicine upon selected topics, such subjects being chosen as can with especial benefit be presented in this personal way. In addition there are general medical clinics upon ambulant cases at the Vanderbilt Clinic, and upon hospital cases in Roosevelt Hospital. In the fourth year the student attends the lectures upon general medicine and the general medical clinics as above described. In addition there is a course in hospital medicine, during which the class is taken in small sections to the wards of Bellevue Hospital by an instructor who is one of the visiting physicians. The section is divided up into still smaller groups of three or four men, and to each group every day a case is assigned; the students take the history, make all of the examinations themselves independently, and try to arrive at a diagnosis. Subsequently the instructor examines the case with them, correcting their errors and reviewing their conclusions. This course is of much value in bringing the students into the closest possible contact with hospital cases. In addition a separate course is given by the Professor of the Practice of Medicine to small sections of the class at a time; this consists in bedside clinics and demonstrations in the wards of Roosevelt Hospital and Presbyterian Hospital. The purpose of this course is to familiarize the student with the phenomena and with the course of the very acute and serious diseases. These cases are not to be found in a dispensary, and for the most part they are too ill to be taken into the amphitheater clinic. But in this course in Bedside Medicine in acute disease the student has the opportunity of observing and studying all the phenomena of typhoid fever, pneumonia, inflammatory rheumatism, and similar maladies,—observing the methods of diagnosis, the course and tendencies of the disease, the development and the course of complications, together with the methods of handling all of these conditions.

During the summer vacation the Medical School, through its

summer course of instruction, offers excellent opportunity for further work in practical medicine in its various branches—the very extensive clinical material in the Presbyterian Hospital, Roosevelt Hospital, Bellevue Hospital Clinic and the Vanderbilt Clinic being all of them available for this end. Moreover, during the various college vacations adundant opportunities are offered the students of the third and fourth year to serve as substitutes in all the large general and special hospitals in the city.

Department of Surgery.—The instruction in surgery covers the last two and one-half years of the course. In the last half of the second year the student has didactic lectures and recitations in general surgery, wounds and their repair, fractures, the surgical diseases, and tumors, and in a general way the surgery of the different systems of the body is taken up. In the third year the course consists of lectures and recitations in general and regional surgery, and practical courses in minor surgery. The latter are given to sections of twenty men in the Vanderbilt Clinic and the out-door department of the Roosevelt Hospital. In these courses the student is taught bandaging, the application of splints, the recognition and treatment of clean and infected wounds, the various sutures, anæsthesia and operative technique. Each student administers anæsthetics, and not only assists in but performs some of the simple operations. A course in the treatment of the surgical diseases of children is also given at St. Mary's Free Hospital for Children. Besides the practical courses clinical lectures are given especially for the third year men, in which cases are shown illustrating the general surgical diseases, injuries, and tumors. In the third year the didactic instruction is supposed to be completed, thus allowing the fourth year students to devote more time to practical courses. Although the operative clinics in the different hospitals are open to the third year students, they are a prominent feature of the fourth year instruction. Each day of the week there are operative clinics at one or more of the following hospitals: the Roosevelt, New York, Presbyterian, Bellevue, and St. Luke's, the Hospital for the Ruptured and Crippled, and St. Mary's Free Hospital for Children. One of the most valuable features of the fourth year instruction is the hospital courses in major surgical diagnosis and treatment at the Roosevelt, Bellevue, and Presbyterian hospitals. These courses extend throughout the year. In them the student is thoroughly drilled in history taking, in methods of examination and in diagnosis. For this purpose the class is divided into small sections.

The clinical lectures are also continued in this year, but are more general in scope than in the third year. A thorough course in operative surgery upon the cadaver is also given. In this course each student performs the typical operations, including the ligation of arteries, amputations, resections and the operations on the abdominal viscera. While it is realized that practical clinical instruction cannot be overestimated, it is felt that the student must have a good theoretical foundation to build upon. For this reason the surgical instruction is commenced in the middle of the second year. Having mastered the principles of general surgery he is ready to take up regional surgery both theoretically and practically; and, in so far as possible, in the third year the clinical instruction is made to supplement the didactic. In the fourth year the didactic instruction becomes subordinate except in regard to new problems and advances in surgery, and the student's energies are centered upon the patient. In his practical courses he is not simply taught, but is made to think and reason for himself. In this he is stimulated by the criticisms not only of the instructor but also of his classmates.

During the past year a laboratory for surgical research has been added to the surgical department. So far it has been open to graduate workers only, and some valuable contributions are forthcoming upon methods of gastro-enterostomy and the treatment of arterial wounds. It is hoped that this laboratory may be enlarged so that it can also be available for undergraduate courses. Work has also been started upon a study collection illustrating surgical anatomy and pathology. This, when suitably housed and arranged, will be of the greatest value.

During the months of June, July and August, courses, some of which are open only to postgraduates, others to undergraduates, will be given as follows: Courses in minor surgery, at the Vanderbilt clinic and the out-patient department of the Roosevelt, Presbyterian, and Bellevue hospitals; in hospital surgery, including surgical diagnosis, treatment and the witnessing of operations, at the Roosevelt, Presbyterian and Bellevue hospitals and the Hospital for the Ruptured and Crippled. These courses are all eminently practical and are limited in regard to the size of the classes, which makes them exceedingly valuable. A summer course in the operative surgery of the ear and accessory sinuses upon the cadaver is open to post-graduate students in the month of June.

Faculty of Law

In the last issue of the Quarterly, public lectures on matters of special interest to the young lawyer were announced. The list has been completed and consists of eight lectures on professional opportunities of the lawyer given under the auspices of the Association of the Alumni of the School of Law in Earl Hall on successive Wednesdays at 4:30 p. m. The lectures—of which the first five have been already delivered—are: March 23, "The corporation lawyer," Julien T. Davies, Esq.; March 30, "The patent lawyer," Edmund Wetmore, Esq.; April 6, "The admiralty bar," Harrington Putnam, Esq.; April 13, "Legal journalism," Wilbur Larremore, Esq.; April 20, "The office lawyer," Edward M. Shepard, Esq.; April 27, "The general practitioner," William B. Hornblower, Esq.; May 4, "The conduct of cases from the point of view of the bench," Judge E. Henry Lacombe, and May 11, "The trial lawyer," Austen G. Fox, Esq. A course of this kind gives the prospective lawyer an idea of the opening before him and furnishes him with a fund of practical experience. In the second place it puts the student in touch with the actualities of the profession and keeps him in touch with his chosen calling. It supplements admirably the theoretical work of the school, which, as is well known, deals with the principles of the law underlying the cases prescribed for previous study and which thus form the basis of discussion in the class-room. In this way the law is studied in its historical and theoretical development. The instructor guides the discussion, but the work is done by the student himself, and training in as well as knowledge of the law inevitably results. This particular course is valuable in another way, for it brings the alumni and the members of the school into contact, and furnishes each with an incentive for cooperation in the work of developing the school.

The Columbia Law Club, whose formation and meetings were described in the March number of the Quarterly held its last meeting for the year on April 15, at which time two informal but intensely interesting addresses were delivered by Hon. John S. Wise, and Mr. Lincoln Steffens, both of New York. Mr. Wise discussed the relation of the negro to the nation, dwelt carefully upon the reconstruction acts by which the relations of the southern states to the Union were defined and gave a careful presentation of the various and present attempts on the part of the southern states to deprive the negro of suffrage. Mr. Steffens spoke on the subject of "Municipal graft"—in which he showed the corruption existing in our leading municipali-

ties, and explained the methods by which it has been partly corrected and which may, it is hoped, wholly extinguish it in the future. The following officers were unanimously elected for the ensuing year: President, D. A. Millet 1904 L.; vice-president, E. H. Updike 1906 L.; secretary, W. C. Morrow 1906 L.; treasurer, Phelan Beale 1906 L.; governing committee, for the faculty, Professor G. W. Kirchwey; for the students, E. G. Budington 1905 L., F. K. Hoffman 1906 L. Just as the public lectures draw Alumni and the present members of the school together, the Columbia Law Club aims to make the students of the School personally acquainted. The organization has succeeded admirably this year, and it is hoped that its continuance will go far to form an *esprit de corps* in the School of Law.

In another way, the students are performing a genuine service for themselves and the School. The *Columbia Law Review* was established in 1901 and already has three substantial and valuable volumes to its credit. The review is wholly conducted by picked members of the second and third year and affords an admirable training for the editors. The leading articles are contributed by well known legal writers and by members of the faculty; notes and comments on recent and important cases are prepared and contributed by the editors, of whom there are twenty-four in all. The result is that the *Review* has already taken its place as an authority with the *Harvard Law Review,* and has made the School of Law and its work widely known.

The year's progress has been very satisfactory and notwithstanding the raising of the requirements for admission, the School has an attendance of four hundred and six. The academic degree as a prerequisite for admission has placed the School in the very first rank, a prominence it shares with but a single school. Two other schools in the country do indeed require previous academic training but the requirement is not absolutely maintained in practice as in theory.

Faculty of Applied Science

Department of Chemistry:

General.—The Department has already outgrown its present quarters, the analytical and assay laboratories in particular have been greatly overcrowded, and it has been necessary to accommodate temporarily some of the quantitative students in the organic laboratory. The rooms in Havemeyer Hall now occupied by the Departments of Architecture and Metallurgy are absolutely indispensable for chemistry. This is due to the rapid increase in the number of students matriculating

under the Faculty of Applied Science in spite of the high entrance requirements. The Department not only trains chemists, but also gives instruction in chemistry to the students of the Schools of Mines, Engineering, and Medicine, and of Columbia, Barnard and Teachers Colleges, and attracts a goodly number of pure science investigators. Over 660 different students are this year attending lectures in chemistry at Havemeyer Hall, while the total registration in the Havemeyer Laboratories (not deducting duplicates) is 710.

In the old "School of Mines" days, but little original work was carried on. This year 20 students are conducting original investigations, as well as the great majority of the instructors, and the number of books, papers, reviews, etc., published annually is rapidly increasing.

Professor Chandler has been appointed chairman of the section of technical chemistry of the international congress of arts and sciences of the St. Louis Exposition; also chairman of the New York section of the Society of Chemical Industry, and a member of the World's Fair Committee of the American Electrochemical Society. He has lectured upon the subject of "Electrochemistry at Niagara Falls" before the members of the Century Club, New York; at Wesleyan University; at the College of the City of New York; at Yale University, and at the Carnegie Technical School, Pittsburgh. Adjunct Professors Miller and Bogert have recently been advanced to full professorships. Professor Miller has been elected chairman, and Dr. Sherman, secretary of the New York Section of the American Chemical Society. At the recent St. Louis meeting of the American Chemical Society, Professor Bogert was elected one of its councilors-at-large. Professor Morgan has been selected as the American editor of the new journal, the *Physikalisch-Chemisches Centralblatt.* Drs. Sherman and Chambers are contributing numerous chemical articles to the Encyclopedia Americana, and Dr. Chambers is also revising the organic chemistry of the Century Dictionary. The staff has this year been increased by the appointment of two tutors in qualitative analysis, Messrs. Beans and Ellard.

All of last year's graduates in Chemistry have secured positions, and the demand for our men is considerably greater than the supply.

Physical Chemistry.—Professor Morgan and Mr. Kanolt read before the New York section of the American Chemical Society a preliminary paper "On the combination of a solvent with the ions." This work promises to do much in explaining why the law of mass action fails to hold in some ionic equilibria. Mr. Jackson presented a paper

at the recent Washington meeting of the American Electrochemical Society, entitled "The thermo-chemistry of electrolytic dissociation." Professor Morgan and Mr. Morlan have completed their work upon the "Ionic equilibrium in solutions of potassium silver cyanide." Mr. Kanolt is continuing the study of the "Complex ions formed by the combination of simple ions with the solvent."

Organic Chemistry.—Dr. Hand has completed his investigation of the "Quinazolines" and has resumed his duties as State Chemist and Professor of Chemistry at the Agricultural College of Mississippi. Other investigations recently completed embrace "The production of the imides of succinic and glutaric acids by the partial hydration of the corresponding nitriles," "The synthesis of alkylthioketodihydroquinazolines from anthranilic nitrile," "Normal heptyl thiocyanate and some new alkyl esters of dithiocarbamic acid," "m-aminobenzonitrile," "Mononitro-o-phthalic acids," "The production of anisic acid by the oxidation of aniseed oil," "On the relation of the chemical constitution to the physiological action of certain modern anæsthetics," "The action of isovaleric aldehyde upon antipyrine," and "3-nitrophthalyl chloride and its action with ammonia and with aromatic amines." The following investigations are now in progress: "The synthesis of quinazolines from homoanthranilic nitrile," "Monobrom-o-phthalic acids," "The synthesis of glyoxalines," "The combination of urea with bibasic acids," "Some new urea derivatives," "Halogen derivatives of naphthylamine sulpho acids," "The synthesis of pentadiazenones," and "Nitro-anthranilic acids."

Analytical Chemistry and Assaying.—Professor Miller has prepared a set of notes on quantitative analysis for the mining engineers. These notes are now appearing in the current volume of the *School of Mines Quarterly,* and are also published by D. Van Nostrand Co.

The following investigations have been completed: "A study of the quantitative determination of antimony," "The gravimetric determination of mercury and its separation from arsenic, antimony and copper," "The volumetric determination of bismuth as molybdate and its separation from copper," "On the reduction of molybdenum by zinc and the ratio of bismuth and molybdenum in bismuth ammonium molybdate," "A rapid method for the determination of arsenic in arsenopyrite," "The influence of atmospheric oxidation on the composition and 'analytical constants' of fatty oils," "A modification of the Babcock-Blaisdale viscosity test for olive oil," "The viscosity of the soap solution as a factor in oil analysis," "The influence of diet, muscular exertion

and loss of sleep upon the formation of uric acid," "An index to the literature of thorium, 1828–1902," "On the conversion of lead sulphate to barium sulphate and a method for the determination of sulphur in lead slags," "On the methods for the determination of molybdenum in steel," "The determination of nitrogen in organic materials," and "A new separation of thorium from cerium, lanthanum, and didymium by the use of m-nitrobenzoic acid." Others under way are: "Charges for the assay of zinc blendes by the crucible method," "Free ammonia in milk," "Detection of formaldehyde in food," "On the effect of acidity on the iodine standard of sodium tetrathionate and sulphurous acid solutions," "Further work on the ferrocyanides of zinc and cadmium," "A comparison of some recent methods of separating manganese and iron," "The use of ammonium bismuth molybdate in gravimetric analyses," and "Some new chromicyanides."

Industrial Chemistry.—A new course (Chemistry 39) in electrochemistry has been added, to be given by Mr. Tucker, the notes for which have already been published in the *School of Mines Quarterly.*

Mr. Dempwolf has completed his research on "Phosphates." The following investigations are now being carried on: "The preparation of metallic magnesium," "The preparation of lithium salts from California lepidolite," "The effect of formaldehyde on cellulose," "The extraction of radioactive salts from carnotite," and "Arclight electrodes."

Summer School.—Next year's summer session will include not only all the courses heretofore given in chemistry, but also courses in organic chemistry, and in the chemistry of food and nutrition; the former of these being the equivalent of courses 20 and 30, while the latter is especially designed for students of medicine, domestic science and for trained nurses, and may be taken either with or without laboratory work.

The great advantages to be obtained, in having access to the resources of the Havemeyer Laboratories, have been appreciated by many besides the teachers for whom these courses were primarily organized. Many students, entering the Schools of Applied Science with advanced standing, can now either make up or anticipate much of their work in chemistry by attending the summer session, and so avoid conflict of hours during the regular session and, by this means, often save a term in obtaining their degree.

Department of Electrical Engineering.—During the summer of 1903 the machine laboratories were altered, so that the dynamos and motors

were directly connected, or belted, thereby eliminating the use of line-shafting. As a result the conduct of the laboratory work has been greatly facilitated and more experiments have been established.

The Department has been presented by the Crocker-Wheeler Company with one new type 2 H. P. direct current motor, one new type 1 H. P. direct current motor and two sets of field coils for two motor frames. The Westinghouse Electric & Manufacturing Company also presented to the Department a 10 H. P. induction motor together with a controller and its accompanying rheostat. The possession of this piece of apparatus has greatly aided the conduct of the alternating current laboratory work and provides a means for showing all the characteristics possessed by an induction motor with external resistances in the motor circuit. The Robbins & Myers Company of Springfield, Ohio, presented to the Department an exhibition stand containing all the parts of a 2 H. P. direct current motor. Some of the parts are sectionalized in order to show the construction. This exhibit has been of great value in the class-room in showing to the men the details of dynamo design. In both the direct and alternating current laboratories there has been set up calibration apparatus which enables the students to quickly check their instruments whenever they use them. This is deemed an essential element of the laboratory work and gives great confidence in the results secured. A number of new forms of testing brakes has been added to the laboratory equipment, which makes the testing of motors a much more satisfactory process than heretofore with the ordinary wooden Prony brake. In the electrical instrument laboratory there has been established a complete scheme of standards and calibration apparatus. Weston laboratory standards have been placed in position with their necessary regulating and controlling apparatus, and with the potentiometer, which was recently secured, and standard cells, the instruments of the Department are kept in accurate adjustment.

Professor Crocker and Mr. Arendt have almost completed a revision of volume 1 of "Electric lighting" and also a text-book on "The essentials of electrical engineering" which will be used by the civil and mining engineers taking electrical courses. They have also written a book on "Storage batteries" for the American School of Correspondence in Chicago. Professor Sever has written and has had published by D. Van Nostrand & Company an electrical laboratory pamphlet for the use of the third year mechanical, civil and mining engineers. Mr. Townsend and Professor Sever have nearly completed a laboratory

manual for the electrical students of the third and fourth years, the design of the book being to cover all the laboratory work which is taken by the electrical engineering students. This will be issued during the summer of 1904.

During the present year the senior class in electrical engineering under the charge of Messrs. Townsend and Arendt made a visit to Schenectady for the purpose of inspecting the works of the General Electric Company and the Schenectady factory of the American Locomotive Company. They also visited the water power station at Mechanicville. The following places were visited in and about New York City during February and March of this year: The Cortlandt Street Exchange of the New York Telephone Company, the Metropolitan Street Railway Power Station, the Manhattan Railway Company's Power Station, the New York Edison Company's Power Station, the Postal Telegraph and Commercial Cable Company's Buildings, the Crocker-Wheeler Company's factory at Ampere, New Jersey, and the Kingsbridge Power Station in New York.

The following theses are now being conducted by members of the senior class: Determination of hysteresis losses of a condenser; A comparison of methods of induction motor calculation; Selenium photometer; Tests on direct current elevator equipments; Development of a new method for the compounding of alternating current systems; Investigation on arc lamp electrodes; Test of a variable speed motor; Determination of the ratio of the resistances of the feeder and the return systems of trolley lines; Electrolysis in relation to sub-surface systems; Comparative costs of central station and isolated plant supply; Design of a direct reading instrument for the determination of the strength of magnetic fields; Development of methods for the determination of magnetic properties of iron and steel; Development of a method for overcoming the inductance in high tension alternating current systems of distribution.

The total number of graduates of the Electrical Engineering Department, including this year's class, is about 250. It is hoped that next fall at Columbia's 150th anniversary every electrical engineering graduate will return to view the progress which has been made in the Electrical Engineering Department, to meet his fellow alumni, and to offer suggestions as to the future conduct of the Electrical Department.

Department of Mechanical Engineering.—The new course on "plant layout" for fourth year mechanical engineers (dynamic option) which was tried this year has proved very successful. Analyses of the

forces and thermal actions in individual machines have always been subject matter for student work in technical schools, but sufficient attention has not been called to the other problem of combining these completed machines as they should be combined to form a power-plant, and this work is important when handled not only qualitatively but quantitatively by calculation and by careful scale drawing. It is this work that has been tried and will now become a regular feature of the course.

At the present time several important investigations are being carried out. Some are of purely practical importance to the mechanical engineer, while others are of equal scientific importance aside from their commercial aspect. Two power-plant tests are under way by students without assistance. One in Brooklyn, that of the Phoenix Tube Works, consists of a gas-producer and the usual auxiliaries, with gas engine, dynamo and various gas-furnaces. The other, that of the Ansonia apartment house in New York, is a steam-plant containing a battery of boilers, a number of compound steam engines driving dynamos, refrigerating, elevator, and laundry plants, together with the heating and ventilating system. The test will determine the cost of making steam, the amount of steam used and hence the cost of operating each of the above named parts of the plant.

In the laboratory one investigation on steam-turbine losses will take into account the internal losses of the turbine and seek to analyze them experimentally. For this purpose these losses have been divided into those due to nozzle, impact on the buckets, churning actions of the buckets in the steam chamber, and finally, friction. By means of searching-tubes the pressure at each point of the axis of the nozzle is being measured. By a pyrometer-couple it is hoped that the temperature at each point along the axis of the jet can also be correctly measured.

Another investigation on some of the physical properties of kerosene oil will, it is expected, result in data useful to the designer of vaporizors and carburetors. The pressure-volume curves for saturated kerosene-vapor will be determined for kerosene boiled once, twice, or more times.

The principles under which the muffling of the noise in gas-engine exhausts could be properly accomplished without detriment to the engine are being studied and results to date are very gratifying.

The variation in modern condensor practice is also under investigation. Some experiments on steam traps will show how the capacity of traps varies with the line-pressure and the back-pressure; also the heat-loss from escaping steam.

The problem of designing high-speed gas-engines involves as one of the most important features the determination of the conditions under which the most constant turning effort can be obtained. This is also being investigated for all combinations of cylinders, speeds and weights of parts.

The fuel value of molasses in steam-boilers is being investigated by firing it with oil through the spray nozzle-burners in the Baldwin locomotive in the laboratory. This result it is expected will be useful to those owners of sugar-plantations who have trouble in obtaining a good price for molasses and who prefer to make paper of their cane instead of burning it as fuel; in other words, substituting molasses for the cane as fuel and making paper of the cane.

Besides these investigations under Dr. Lucke, he has (assisted by specially able students) been engaged, during the past term, in professional cases of great variety covering tests for acceptance of contract, tests for scientific data, expert opinions in technical law suits, investigations of patent novelty, development of designs for engines, etc.

A graduate student is working on the relation between the composition of an alloy suitable for a bearing-metal and its coefficient of friction. This will throw light on the variance between the results of modern investigators and the laws of friction developed by Morin.

Work in the testing-laboratory has been active, particularly in the line of investigation of construction materials. Numerous tests have been made of a widely varying character.

I. G. Johnson & Co., of Spuyten Duyvil, N. Y., have favored us with an extremely interesting series of tests upon high-grade steel-castings. (Four members of the above firm are graduates of the School of Mines.)

A number of investigations of the strength, absorption, and weathering properties of new building materials have been in progress, particularly upon sand-lime bricks, artificial building-stones, and concretes.

Professor Woolson has continued his tests upon the fire-resisting properties of wood and other building-materials. In connection with the Bureau of Buildings he conducted a series of fire tests upon cast-iron column protective coverings, the results of which were quite instructive. During the winter he has had charge of four fire, load and water tests upon fire-resisting floor constructions. Three of these tests were made in brick-buildings erected for the purpose in or near the city, and the third was unique in the fact that it was conducted upon

the fifth floor of a large building in the course of erection in the lower part of the city. The demand for tests of this character has induced him to undertake the construction of a test building adjacent to the University with all necessary appliances for making fire and load tests of every description. Besides serving their commercial purpose, these tests will be valuable to students, since they will afford a practical demonstration of the fire-resisting and strength properties of modern constructive materials, which have been largely unknown factors to the engineering profession.

Department of Metallurgy.—Professor Howe is absent from the University on his sabbatical vacation. In his absence the course in metallurgy of copper was given by H. O. Hofman, E.M., Met.E., Ph.D., Professor of Metallurgy at the Massachusetts Institute of Technology, and the longer course in metallurgy of iron and steel by J. W. Richards, Ph.D., Professor of Metallurgy at Lehigh University. Mr. Stoughton has been appointed Adjunct Professor of Metallurgy from July 1, 1904.

The following non-residents have given, or will give, lectures during the regular courses: E. D. Peters, M.D., consulting metallurgist, "The choosing of a process for metallurgical treatment of an ore"; James Douglas, LL.D., President Copper Queen Mining Co., "The treatment of the copper ore at Rio Tinto, Spain"; J. Parke Channing, E.M., '83, President Tennessee Copper Co., "Pyritic smelting"; Jos. Struthers, Ph. D., '95, Assistant Editor American Institute of Mining Engineers, "The cyanide process"; Geo. C. Stone, Ph.B., '79, Chief Engineer New Jersey Zinc Co., "The metallurgy of zinc"; Chas. H. Repath, Chief Engineer to Frank Klepetko (Mines '80), "The Klepetko roasting furnace"; J. W. Richards, Ph.D., President American Electrochemical Society, two lectures on "The applications of electricity to metallurgy"; W. Campbell, Ph.D., three lectures on "Alloys"; Richard Moldenke, Ph.D., '85, "The engineer in the foundry"; Chas. Kirchhoff, Editor of the *Iron Age*, "The resources of the U. S. and her principal competitors in iron and steel."

Metallurgy 5 has been extended to include a course in advanced metallurgy, weekly conferences between the officers, graduate and third and fourth year students in metallurgy, subjects announced and prepared in advance. The laboratory courses for graduates, mining engineers and metallurgists, now being given for the third year, have been enlarged and more thoroughly systematized, officers of the department and Dr. Campbell giving instruction jointly.

Mr. Stoughton, Dr. Bolles and Dr. Campbell have jointly given a course of six lectures on metallurgy under the auspices of the extension department and the New York Board of Education, twice delivered.

Dr. Campbell has been awarded the Saville Medal by the Society for Chemical Industry, the degree of M.Sc. by Durham University and and a research grant of $1,500 by the Carnegie Institution.

Dr. Bolles has devised a new type of electric furnace, with probable usefulness in laboratory and industrial work. Mr. Stoughton has devised an apparatus for the demonstration of the hardening of steel and the production of sorbitic steel. Both will be in the department's exhibit at St. Louis.

Mr. Stoughton is investigating the relations of carbon and iron and revising the metallurgy of the Century Dictionary. Dr. Bolles continues his investigations on the metallic sulphides as matte constituents, and Dr. Campbell his on alloys. Mr. John F. Thompson has in progress a graduate investigation on nickel sulphide. Mr. Geo. B. Waterhouse, Associate in Metallurgy, University College, Sheffield, Scholar of the Royal Commission of the Exhibition of 1851 (England), has been pursuing an investigation on nickel steel. Mr. Nicholas D. Durdin, who is commissioned by the St. Petersburg Polytechnical Institute to visit works and schools preparatory to appointment as professor of metallurgy is pursuing preliminary work for a graduate investigation on iron and steel. In addition to its undergraduate students four students of mining engineering are pursuing special laboratory or thesis work in the department.

In the summer the students spent one week at the large steel works of the Carnegie Steel Co., and one week at copper, gold, lead, and silver plants in Colorado, besides visiting copper, gold, lead, silver, zinc and crucible works in the vicinity of New York during the term.

Several valuable gifts have been received during the year for the department's museum and laboratory equipment.

Faculty of Political Science

Department of History.—Recent changes in the courses offered by the department have been directed toward covering more completely and satisfactorily than heretofore the various fields of European and American history. Professor Sloane will hereafter give two courses in alternate years devoted to European affairs since 1815. The course on the French Revolution and its influence upon Europe which he has hitherto given in association with Professor Robinson will become a

full year's course under Professor Robinson alone. Dr. Shotwell will be absent on leave during the coming year with a view to prepare himself more fully to deal with the early mediæval period, which has been somewhat neglected here in the past. Professor Osgood will offer, during the coming year, a new course upon the American Revolution which will take the form of a seminar, meeting two hours weekly. Dr. Shepherd will give a new course on the history of Spanish America, exclusive of the portions now within the continental domain of the United States. Special attention will be given to the institutions and conditions under the colonial system, but an effort will also be made to explain the later development of the Spanish-American states in the light of their colonial and revolutionary experience. This course will be followed by others on the early history of the South and West under the French and Spanish rule and on the development of the West since 1803.

Recent additions to the collections of historical material in the University library include a very complete set of the sources for the early Church and of works dealing with this important phase of European history. An effort is also being made to complete the collection of documents relating to the discovery, conquest and organization of Spanish America. Also the extensive material relating to early travels and explorations in the West, now in course of publication, is being added to the University library as fast as the volumes appear.

The aggregate enrolment in the historical courses offered at Columbia is 524, and at Barnard 162; total enrolment 686.

Professor Osgood is about to publish the first two volumes of his "History of the American colonies in the seventeenth century." A third volume is in preparation. With the assistance of Mr. Austin B. Keep, Professor Osgood is editing the Minutes of the Common Council of the City of New York from 1674 to 1776. The proof is now being read, and it is hoped that the series will be ready for publication early in 1906. The minutes will fill eight volumes in print. The manuscript of the Records of the London Company for Virginia, which is being edited by Professor Osgood and Miss Susan M. Kingsbury for the Congressional Library at Washington, is now ready for the press.

Professors Dunning and Robinson have been asked to read papers at the International Congress of Arts and Sciences at St. Louis in September.

During the past year Dr. W. Roy Smith and Professor C. L.

Raper have published volumes which were prepared as doctoral dissertations in Columbia. The subject of Dr. Smith's volume is "South Carolina as a Royal province"; that of Professor Raper is entitled "North Carolina: A study in English colonial government." Other volumes on New York, New Jersey, Massachusetts and New Hampshire are in preparation.

Department of Public Law.—A course of lectures on practical problems of municipal administration was given during the second half year under the auspices of the Academy of Political Science. Delivered by men thoroughly conversant, not merely with the theory of municipal government, but with the practical problems of the particular departments to which they were attached during the last administration, these lectures proved particularly interesting and valuable, and were largely attended. Several of the lectures were illustrated. The course was made up as follows: February 26, The Dock department, by Hon. McDougall Hawkes; March 4, The Street Cleaning department, by Hon. James McG. Woodbury; March 11, The Police department, by Gen. Francis V. Greene; March 18, The Fire department, by Hon. Thomas Sturgis; March 25, The department of Education, by Hon. C. C. Burlingham; April 8, The Tenement House department, by Hon. Robert W. DeForest; April 15, The Health department, by Hon. Ernst Lederle; April 22, Bellevue and allied hospitals, by Hon. John S. Brannan; April 29, The department of Charities, by Hon. Homer Folks.

In the regular courses offered by the department, the aggregate enrolment is 530.

Professor J. B. Moore is publishing in *Harpers* magazine an important series of articles entitled "The spirit of American diplomacy." The first of these which appeared in March deals with the "Beginnings of American diplomacy." Professors Burgess, Munroe Smith and Moore have been invited to read papers at the International Congress of Arts and Sciences at St. Louis in September. Professor Munroe Smith has also been asked to represent at St. Louis the *Internationale Vereinigung für vergleichende Rechtswissenschaft* of Berlin.

Department of Economics.—Professors Seligman, Clark and Giddings have been invited to read papers at the International Congress of Arts and Sciences at St. Louis. Professor John B. Clark delivered, during April, in Richmond, Virginia, the lectures annually given on the Thomas foundation. Professor Seager has been conducting during the year sociological excursions in connection with his course on paup-

erism, poor laws and charities. Students visited the institutions on Blackwell's Island, Randall's Island, the farm colony in the borough of Richmond, the Charity Organization Society, the Association for Improving the Condition of the Poor, the Immigration Station on Ellis Island, and various settlements. In the conduct of these excursions, Professor Seager was assisted by Mrs. Elsie Clews Parsons.

The Series in History, Economics and Public Law is to be increased during the spring, by an exceptionally large number of valuable monographs. Among the forthcoming publications are the following: "History and criticism of the labor theory of value in English Political economy," by Albert C. Whitaker, instructor in economics, Leland Stanford Jr. University; "A history of military government in newly acquired territory of the United States," by David Yancey Thomas, professor of history and political science, Hendrix College; "Treaties, their making and enforcement," by Samuel B. Crandall, of the State Department, Washington; "The office of justice of the peace in England," by Charles A. Beard, George William Curtis fellow; "The historical development of the poor laws of Connecticut," by Edward W. Capen, lecturer in the Hartford Theological Seminary; "Pre-Malthusian theories of population," by Charles E. Stangeland, university fellow in economics; "The sociology of a New York City block," by Thomas J. Jones, head of the Department of Sociology and History at Hampton Institute, Virginia; "The hemp industry in the United States," by Thomas B. Moore.

The aggregate enrolment in the courses in economics and social science during the year is 1084, distributed as follows: at Columbia, in economics 680, in sociology 200, total 880; at Barnard, in economics 186, in sociology 18, total 204. This includes the attendance at thirteen courses in economics and nine courses in sociology at Columbia, and in eight courses in economics and two courses in sociology at Barnard.

Faculty of Philosophy

Department of Anthropology.—During the past year the courses of the Department of Anthropology have been expanded in several directions. The introductory courses of the Department have been reorganized and opened to juniors. The general introductory course and a course on descriptive ethnology are now given in both Columbia University and Barnard College. The general introductory course includes a comprehensive discussion of the problems of anthropology, while the descriptive course consists of two parts. The first part, given

by Professors Boas and Farrand, describes the ethnography of North and South America, Polynesia, Australia, and Africa; while the second part, which is given by Professors Hirth, Prince, and Farrand, deals with the ethnography of Asia. A third introductory course, which is intended as a general introduction to the statistical treatment of biological and psychological problems, is open to seniors.

The advanced courses of the Department consist of a course in ethnology, given by Professor Farrand; a course in physical anthropology, given by Professor Boas; and a course extending over two years, on American languages, also given by Professor Boas.

The establishment of the Loubat Professorship of American Archæology has made it possible to add a special course on American archæology, which is being given by Professor Saville.

The research-work of the Department is conducted partly in Columbia University, partly in the American Museum of Natural History, being based on the collections of the Museum.

A University extension course on primitive industries was given by Dr. Clark Wissler, assisted by Mr. A. B. Lewis. This course was primarily intended for teachers, and has proved so valuable that it will be given next year as a regular course in Teachers College.

For the coming year Dr. Clark Wissler has been appointed as lecturer in anthropology. In addition to the course just mentioned, he will give a course on types of culture, primarily intended for students at Teachers College. The Department has also been strengthened by the appointment of Dr. Berthold Laufer, who is well known for his researches on the ethnology of eastern Asia, as lecturer. Dr. Laufer will take part in the course on the ethnography of Asia, and will give a special course on this subject.

Dr. William Jones, who held the position of assistant in American linguistics during the past year, has received an appointment as research assistant at the Carnegie Institution.

Department of Comparative Literature.—The Department of Comparative Literature has during the past year restricted its work solely to graduate students, except that three specially qualified seniors in the College were admitted to two of the courses. During the absence of Professor Woodberry, his courses were temporarily suspended, and Dr. Spingarn acted as head of the department. Four courses and two seminars were given, with an enrolment of over fifty graduate students.

A series of public lectures was inaugurated, and these will here-

after be continued in connection with the work in comparative literature. During the present academic year, the following public lectures were delivered on successive Wednesdays:

Frank Wadleigh Chandler: "Spanish ideals in drama and romance," January 6, 13, and 20.

Curtis Hidden Page: "The poetry of the French Renaissance: Ronsard," January 27.

Joel Elias Spingarn: "Love in the poetry of the Renaissance," February 3, 10, and 17.

In January, 1904, Professor Woodberry resigned his chair; and at the March meeting of the Trustees, the Department was reorganized by the appointment of Professor J. B. Fletcher of Harvard as Professor of Comparative Literature, and of Dr. J. E. Spingarn as Adjunct Professor. The spirit of the work will not suffer any material change, but stricter attention will be paid to the purely historical aspects of the field.

During the past five years the Department has published a series of studies in comparative literature, of which eight volumes, ranging in size from 250 to 500 pages, have already appeared. A ninth volume will soon be added to the series.

Department of English.—Since the Department was established, in 1899, there has been a remarkable growth in the number of graduate students. In 1899–1900 there were only 11 students taking English as a major; in 1900–01 there were 31; in 1901–02, 41; in 1902–03, 73; and in 1903–04, 93. This rapid increase is due partly to the general causes that are influencing students to come to large cities for university work, and partly—and perhaps more especially—to the progress that has been made here in organizing the general field of graduate study in English, and providing a rational system of courses for candidates for the degrees of A.M. and Ph.D.

There will be a number of changes in the corps of instructors for 1904–5. Professor Price's death in the spring of 1903, after many years of service as professor of the English language and literature, made it necessary for the Trustees to look with great care into the modern field of scholarship in the English language and literature, with a view to determining whether it would be wise to continue a chair whose scope was so exceedingly large. It was wisely determined to abolish the chair in question and to establish two new chairs. The holder of one of these will be a linguistic philologist, pure and simple, with his main interests in the field of Old English. It is understood

that it is the intention of the Trustees to fill this chair during the next academic year. To the second chair the Trustees have appointed Dr. W. A. Neilson, now of Harvard University, who will begin his work at Columbia next year. Professor Neilson will occupy himself mainly with the mediæval and early Elizabethan field, and will offer next year courses in Chaucer and Shakespere, and a seminary course, prescribed for first year graduate students who are specializing in English literature, on the Scottish vernacular literature of the 16th century.

Mr. C. M. Hamilton, who has been tutor in English for three years, resigns this spring to take up literary work. His place will be filled by Mr. K. C. M. Sills, now instructor in English at Bowdoin College. The courses given by Mr. R. C. Ringwalt, who has for three years been lecturer in public speaking, and who now resigns to take up literary work, will be given next year by Mr. F. X. Carmody, who now becomes lecturer in elocution and public speaking.

Department of Germanic Languages and Literatures.—The attendance in the various courses of the department for the current academic year has been very gratifying, and is distributed as follows: Columbia College, 307, graduate faculties, 121, Barnard College, 193, Teachers College, 64, the total being 685. If to this be added the 152 students in the Summer Session and the 103 in the extension courses, there is a grand total enrolment of 940.

Only one change in the personnel of the teaching staff occurred during the year, but several promotions have been made. Mr. Keppler, assistant in the department since 1900, resigned in February to accept a tutorship in the College of the City of New York, his work for the remainder of the academic year being divided between Mr. Kind and Mr. Seiberth. Mr. Hervey and Dr. Tombo, Jr., both instructors in the department, have been promoted to adjunct-professorships. Mr. Hervey was graduated from Columbia College in 1893 and took his master's degree in 1894. The following year he was University fellow in German, and then went abroad and studied at the University of Leipsic. He was made tutor in 1896 and instructor in 1900. Dr. Tombo received his bachelor's degree at the College of the City of New York in 1895, his master's degree from Columbia University in 1898, and the doctorate from Columbia University in 1901, being University scholar in 1897–1898, and fellow in German in 1898–1899. The following year he spent as a student at the University of Leipsic. Dr. Tombo was made tutor in German in 1900 and instructor in Germanic Languages and Literatures and registrar of the University in 1902.

Mr. Alexander Otto Bechert, who was graduated from Columbia College in 1903 and who has been scholar in German during the past year, has been appointed University fellow for 1904–1905.

The public course of German lectures was delivered this year by Dr. Ernst Richard, the subjects and dates being as follows: February 3, Einleitung: "Das Gebiet der Kulturgeschichte. Die Germanen bei ihrem Eintritt in den Kreis der griechisch-römischen Kultur."—February 10, "Völkerwanderung. Christentum. Anfänge deutschen Staatswesens."—February 17, "Das heilige römische Reich deutscher Nation. Lehnswesen. Mönchtum."—February 24, "Rittertum. Kreuzzüge. Herrschaft der Landesfürsten. Aufblühen der Städte." March 2, "Blütezeit des deutschen Bürgertums."—March 9, "Das Jahrhundert der Kirchentrennung."—March 16, "Der dreissigjährige Krieg und seine Folgen. Spuren geretteten Kulturstrebens."—March 23, "Das Zeitalter des Absolutismus und der Herrschaft französischen Einflusses. Erste Anfänge moderner Wissenschaft und Technik."—March 30, "Das heroische Zeitalter des deutschen Geisteslebens. Die Befreiung des deutschen Geistes von fremder Herrschaft und die geistige Einigung der deutschen Stämme."—April 6, "Festigung und Entwicklung der deutschen Kultur als Kultur des Gesammtvolkes. Ihre Stellung im europäisch-amerikanischen Kultursystem."

On March 25 Professor Thomas lectured on "Goethe" in South Norwalk, Conn. Dr. Remy delivered an address on "Die germanische Philologie im Dienste des Lehrers" before the *Verein Deutscher Lehrer*. Dr. R. Tombo, Sr., spoke recently before the *Vereinigung alter deutscher Studenten*, the title of his lecture being "Der allgemeine deutsche Sprachverein." Professor W. H. Carpenter was recently reelected a member of the University Council for a period of three years from July 1, 1904.

On the evening of April 15 the *Deutscher Verein* gave a Kommers in honor of the German Ambassador, Baron Speck von Sternburg. An account of the entertainment will be found under *Student Life*.

In the Summer Session of 1904 ten courses will be given under the auspices of the German Department by Professors Hervey and R. Tombo, Jr., Doctors Remy, R. Tombo, Sr., and Braun, the new courses being a course (sC) supplementing the elementary courses (sA and sB), to be given by Dr. Braun, one in Middle High German by Professor R. Tombo, Jr., and one (in German) on "The history of German literature in the 19th century," by Dr. R. Tombo, Sr. Five of the ten courses may be counted towards the higher degree.

Departments of Philosophy and Psychology.—The following table exhibits the growth of instruction in the Division of Philosophy, Psychology and Anthropology from the academic year 1890–91:

Year	Officers of Instruction	Number of Courses	Enrolment in Courses
1890–91	3	7	114
1891–92	3	9	133
1892–93	5	9	175
1893–94	4	12	235
1894–95	6	14	235
1895–96	5	15	267
1896–97	7	16	286
1897–98	9	19	341
1898–99	11	24	373
1899–00	11	23	378
1900–01	12	26	457
1901–02	14	29	483
1902–03	16	39	592
1903–04	21	50	749

This table does not include the statistics for the summer sessions of the University or the enrolment in Barnard College and Teachers College. The enrolment in these colleges for the current year is 281 for Barnard College and 475 for Teachers College. The enrolment for the summer session of 1903 was 167. The total enrolment in the Division for the current year is thus 1,672. President Butler, in an article on the Department of Philosophy in the QUARTERLY for March, 1901, said: "The records of the University show that twenty years ago the only instruction offered in the whole range of the subjects now represented by the division of philosophy and psychology—was two courses occupying four hours weekly; one a course in logic, one hour weekly, required of the junior class, and the other a lecture course in the history of philosophy and psychology, three hours weekly, open as an elective to seniors."

Dr. R. S. Woodworth, instructor in psychology, will have charge of the psychometric and anthropometric laboratories at the St. Louis Exposition, and will be assisted by Mr. F. G. Bruner, assistant in psychology. The chief work of the laboratory will consist in testing the savage tribes that will be assembled at the Exposition, and the results will subsequently be worked up in the Columbia Laboratory.

The Section of Anthropology and Psychology of the New York Academy of Sciences met in conjunction with the New York Branch of the American Psychological Association on March 28. There was an afternoon session at the Psychological Laboratory, Columbia University, when the following papers were read by members of the

department: "Mental resemblances of twins," by Professor E. L. Thorndike; "Measurements of the mentally deficient," by Miss Naomi Norsworthy; "Color contrasts," by Dr. R. S. Woodworth; "New apparatus and methods," by Professor J. McK. Cattell; "The time of perception as a measure of differences in sensations," by Mr. V. A. C. Henmon; "The daily curve for efficiency," by Mr. H. D. Marsh. At the evening session at the American Museum of Natural History, Dr. William P. Montague read a paper on "A neglected point in Hume's philosophy," and Mr. Percy Hughes on "Action as the concept of historical synthesis."

During the current semester the following lecturers have contributed to the course Philosophy 26: Professor Royce, five lectures on "The comparative study of scientific concepts"; Professor Münsterberg, as non-resident lecturer in psychology, six lectures on "Controversies in modern psychology"; Professor Dewey, six lectures on "What do we mean by knowledge"; Professor Ladd, five lectures on "Psychology of the religious experience"; and Professor Titchener, four lectures, two on "The psychology of the affective processes," and two on "The revival of psychophysics."

In February and March Professor Woodbridge delivered a course of ten lectures at Amherst College on "Representative philosophers." Mr. P. H. Tarr has been appointed fellow in philosophy and Mr. V. A. C. Henmon fellow in psychology. Mr. W. H. Davis, fellow in psychology, has been appointed instructor in philosophy at Lehigh University. Professor John Dewey has been appointed non-resident lecturer in psychology for 1904–5.

Department of Romance Languages and Literatures.—The work of the Department during the past year was carried on by a corps of eleven teachers, *viz.*, four professors, two instructors, four tutors and one lecturer. The work was divided between Columbia College, Barnard College, Teachers College and the Faculty of Philosophy of Columbia University. For the first time, the courses in Teachers College, French A and French 1, were given, not by a special appointee of that college, but by members of the Columbia staff delegated for the purpose. With Barnard College the arrangement which has been in force for several years was continued, fifteen hours of instruction in Barnard College being given by officers of Columbia College, and thirteen hours in Columbia College or under the Faculty of Philosophy by officers of Barnard College.

The advanced courses in the graduate department were attended by a

larger number of students than ever before; and one of these students, Miss Dorothea Canfield, completed her studies for the doctor's degree and presented therefor a dissertation on "Racine and Corneille in England," which was considered worthy to be included in the series of Columbia University Studies in Romance Philology and Literature. As usual, several graduate students secured during the year important teaching positions, one of them being appointed to a tutorship in the College of the City of New York, and another to a similar position in the Stevens Institute of Technology.

The usual courses of public lectures were carried on with perfect regularity, and several distinguished outside lecturers were invited to address (in French) Columbia audiences, chief among these, being Professor André Michel, of the Louvre Museum of Paris, and the celebrated publicist, Anatole Leoy-Beaulieu, member of the Institute of France.

A new undertaking of the Department consisted of a public course in English on French literature, given on Saturday mornings by Professor Cohn, the subject being the French Classical Drama of the seventeenth century. Admission was by registration, the total registration reaching 267 and the average attendance was over 100.

Part of the activity of the members of the Department was devoted to courses in the University Extension Department, given mostly in the Teachers College buildings. One of these courses, however, the course in elementary French, was conducted by Mr. Loiseaux in Newark, New Jersey.

Several members of the Department were invited to lecture outside of the University, thus extending the influence of the Department. Professor Cohn lectured in several schools in the evening courses organized by the Board of Education; in Cooper Institute, for the People's Institute; and on various other occasions for the French branch of the Y. M. C. A., the Alliance Française of New York and the Cercle de l'Alliance, of Boston, Mass. Dr. Page gave a great many lectures for the Board of Education; his activity being spread all over Greater New York. Mr. Bargy addressed audiences in Amherst College; in Baltimore, Md.; Albany, N. Y.; West Point, N. Y.; Boston, Mass., and in several points in New York City.

Mr. Loiseaux, who has just been promoted to the rank of Adjunct-Professor, will be absent on leave during the college year 1904–1905. He intends to spend most of his time at the University of Paris.

G. P. Putman's Sons will begin in the fall of 1904 the publication of

a new series "French Classics for English Readers," the editors of which are Professor Cohn and Dr. Page.

Faculty of Pure Science

Department of Astronomy.—The academic year 1903–4 has been to some extent a period of transition. The continued illness of Professor Rees, which began in December, 1902, has made it necessary for the Trustees to extend his leave of absence until July, 1905. During the interval, Professor Jacoby will continue as acting head of the department, and Mr. Charles L. Poor, formerly Associate Professor of Astronomy in the Johns Hopkins University, will also be at Columbia. Mr. Poor will have the title of Professor and a seat in the faculty of Pure Science.

It is the present settled policy of this department to limit direct observation upon the sky to the work required in elementary instruction of College students and the younger graduates. Instrumental work for this purpose consists principally of the determination of latitude and longitude with the zenith telescope and portable transit instrument. A new transit has been mounted in the University observatory during the present year. It was designed and constructed by Bamberg, of Berlin, and is probably the finest instrument of its class yet made. Several graduate students have used it during the winter, and obtained most satisfactory results.

For research work, and for the work of advanced students, we prefer to devote ourselves to those parts of astronomical science which admit of useful progress without an observatory, as that term is usually understood. It is a most fortunate circumstance that today, more than at any time in the past, research is centering upon the study of astronomical photographs. Instead of laboriously measuring the heavenly bodies upon the sky itself, astronomers now substitute analogous measures of a photographed picture of the sky; for the discomforts of telescopic night-work in an observatory necessarily unheated, we substitute observations of the negative under a microscope, executed by day in a comfortable laboratory. The output of results per unit of time expended is enormously increased, nor is there any appreciable loss of that historic precision which has made astronomy, above all others, "the exact science." The negatives themselves must of course be made at night; but one astronomer, in two or three clear nights, can make as many photographs as an entire observatory force of a dozen persons could measure in a year.

Columbia is very fully provided with the best modern apparatus for the measurement of photographs, and possesses also a large collection of original negatives suitable for various branches of research. These negatives were made by Rutherfurd, at New York; Donner, at Helsingfors; Gill, at the Cape of Good Hope; Henry, at Paris; Campbell, at the Lick Observatory; etc.

That the photographic method is at least equal in accuracy to the "heliometer," the most precise of all older instruments, was first proved in the Columbia University Observatory publication, "The Rutherfurd photographic measures of the group of the Pleiades" (Jacoby, 1892). This was reviewed at length in the *Vierteljahrsschrift der Astronomischen Gesellschaft* (Leipzig, 1892, XXVII, 206 to 213). The review closes by concluding "that here is demonstrated for the first time in a definite manner the equality of photographic measures with heliometric ones; that photographic measurements are at least equal to the most accurate ones possible by direct eye observation; but that in regard to time and efficiency the photographic method is superior in an extraordinary degree."

Since the above publication appeared, a regular course has been offered on the methods of photographic astronomy; during the past six years, four students have received the degree of Ph.D. for work done in this course. According to statistics published in *Science*, only twenty doctorates in astronomy were granted during the same period by all American universities together. No other university granted as many astronomical doctorates as Columbia. This highly satisfactory result has not been due in the least to inferiority of the Columbia requirements, but rather to ability on the part of those who have sought their degree here, attracted probably by the opportunity of using the photographic method. All our astronomical doctors now hold creditable professional positions elsewhere.

The photographic research activity of the present year has included the publication of two memoirs, numbered 20 and 21 in the series of Contributions from the Observatory of Columbia University. These memoirs are entitled: "The Sumatra eclipse, 1901," by Dr. S. A. Mitchell; and "Photographic catalogue of 829 stars near the south pole of the heavens," by Professor Jacoby.

An entirely different direction in which expansion is possible at present is in the subject of theoretical or orbital astronomy. In this branch Professor Poor is a recognized authority, and his appointment thus strengthens the department materially. During the past winter

he has extended his researches as to the possible identity of Lexell's lost comet with Brooks' periodic comet, and his results will be published soon by the New York Academy of Sciences. At the same time, Dr. Mitchell has carried forward, in the physical laboratory, his promising investigations in vacuum photography, and Professor Jacoby has prepared for publication the extended series of zenith telescope observations made by Professor Rees, Dr. Davis and himself, during the years 1893 to 1900.

In view of the above considerations, it is evident that the proper policy for the department of astronomy is to desist from direct observations on the sky, unless some benefactor of science should provide us with a truly adequate observatory, capable of competing with the Lick and Yerkes institutions. Such an observatory would cost half a million; and a further million for endowment would be an absolutely indispensable adjunct. An unendowed observatory would be worse than useless; it would probably bring about a discontinuance of our present useful work, and substitute a hopeless effort to utilize the new apparatus without a sufficient force of astronomers.

Department of Botany.—So intimate is the relation existing between the Department of Botany and the Botanical Garden that it is difficult to separate interests shared in common, since every increase of facilities for work at the Garden accrues to the advantage of the graduate work in botany at the University.

The accumulations of the extensive explorations made during the past year in the American tropics have kept the entire staff busy, and extensive additions to the known flora of this region are being constantly made. These include the explorations by Professor Underwood in Jamaica and eastern Cuba, by Professor Britton in western Cuba, by Professor Lloyd in Dominica, by Professor Earle in Jamaica, Puerto Rico, and Cuba, by Dr. Howe in Puerto Rico and the Bahamas, by Mr. Nash in Haiti, and by Dr. Small in the lower Everglades of Florida. Rapid steps are being taken towards a more definite knowledge of the flora of the West Indies and its northern extension into peninsular Florida.

Two associated laboratories have been established during the year which offer special advantages for advanced students of botanical problems each in its way different from any laboratories established on this side of the world. The first is the desert laboratory at Tucson, Arizona, established under a grant from the Carnegie Institution. The management of this laboratory is intrusted to a commission of two

botanists, of whom Dr. MacDougal of the Botanical Garden is one. The resident supervision of the laboratory is intrusted to Dr. W. A. Cannon, for two years our fellow in botany, and the laboratory offers facilities for students desiring to make special investigations of desert problems. Professor Lloyd will spend some time at the laboratory during the present summer.

The second research laboratory is established at Cinchona in Jamaica under the control of the Botanical Garden and is one of the direct results of Professor Underwood's visit to Jamaica last year. The laboratory is located at an elevation of 5000 feet and is within easy reach of original tropical forest and furnishes a delightful locality for work either in summer or winter as the temperature ranges from 45° to 78° F. as tested by twenty years' observations on the part of the colonial government. Living facilities are both excellent and reasonable in price and the laboratory furnishes as favorable a location for the study of special problems connected with plant life in the tropics as can be found anywhere in the world.

With the development of facilities for work away from the laboratories, there has been a constant increase of facilities for work at the home laboratories themselves. A laboratory for work in physiological chemistry has been equipped, and Professor Gies gives one day each week at the Garden. This enables graduate students to carry on work in both major and minor subjects at the Garden, and overcomes the necessity of making the trip to fifty-ninth street for a portion of their work. This is particularly advantageous for certain phases of work in physiological chemistry where certain operations necessitate waiting for results, and the present arrangement makes work of this sort possible with the least loss of time as other work can be attended to during the intervals of waiting. Additions to the nursery buildings also make it possible to carry on experimentation on a larger scale than formerly.

The number of persons who were registered for research work in Botany during the past calendar year was forty-six, representing forty institutions of collegiate rank. Twenty-seven of these students were candidates for higher degrees at Columbia University.

In the undergraduate work at Schermerhorn Hall attention has been chiefly directed to the preparation of laboratory apparatus and morphological materials. Dr. Curtis has installed a collection of the trees and shrubs growing in the vicinity of New York city comprising at present over three hundred species. This material has been ar-

ranged in swinging frames 30 x 40 inches divided into four sections and covered by a sash of glass. Each section contains specimens of a single species and shows the winter condition, flower, fruit, and leaf characters with photographs, illustrating the habit, size, and habitat, together with radial, tangential, and transverse sections of the wood. The collection is supplemented in adjoining cases with specimens of the trunks showing the distinctive bark and wood characters. The laborious and time-consuming work of Dr. Curtis is sure to yield important results. Not only is it of great advantage to students in civil engineering who are especially interested in timber, but also to the student of general botany. The ignorance of the average man in regard to our native trees is phenomenal, and we believe that a knowledge of the common trees and shrubs is a feature particularly well adapted to the general botanical course, since trees and shrubs form so conspicuous and characteristic an element in the surface features of the country. It may be said incidentally that the immediate vicinity of New York is exceptionally rich in its variety of shrubs and trees. Specimens of over 325 species have already been collected, including sixteen species of oaks, twenty-three of willows, nine of maples, six of hickories and other genera in proportion. Directly associated with this work mention may be made of a series of illustrations of wood-destroying fungi showing the fungi *in situ* and the appearance of the diseased timber.

Dr. Curtis has also prepared an extensive teaching collection of the biological groups of plants ranging from the lowest to the highest types. These show morphological and adaptive features and include a sufficient series of illustrations to give the student a comprehensive idea of each group and its extent or range of variation. These are prepared on large cardboards covered with celloidin fronts so that they may be handled without injury by the student, and by means of these illustrations he will be led to avoid the false generalizations so common when only a single type is utilized to establish relationships. A valuable series of charts has also been prepared in the laboratory during the present academic year. These illustrate especially the embryology and life-history of various groups of plants, and are also designed to show the relations between the great divisions of the plant world.

Material additions have been made to our ecological collections, particularly in the way of illustrations from photographs. Dr. Curtis has brought together a most valuable collection showing the relations

of vegetation to soil and climate conditions, which are not only of great utility in the class room, but furnish as well an attractive feature of the laboratory equipment.

Mr. House, assistant in botany, was granted a leave of absence on April 1 to take charge of certain courses of instruction in Rutgers College. He has completed some exceedingly interesting work on the effect of aluminium salts on the growth of seedlings, which he will offer for a thesis for the A.M. degree. His major work is on the family *Convolvulaceae* of North America.

Mr. Horne, fellow in botany, has attained some very interesting results in his study of the nectriaceous fungi, which constitutes his major work.

Department of Geology.—The Newberry collection of fossil fishes, which represented no little part of the means and labors of Professor J. S. Newberry during the years 1865–1890, had long been one of the most valuable museum assets of the department. It contained the greater number of the American fossil fishes described by Professor Newberry and included an especially rich and striking series of the great predatory types of early horizons in Ohio, some of which when restored are seen to have been thirty feet in length. This collection was worthy of two things which the University was hardly in a position to offer—museum space and the constant attention of a special assistant—for without these the collection could not be adequately studied. Accordingly, after careful consideration, an arrangement was made with the American Museum of Natural History by which the latter received the Newberry collection on loan, the University assuming the right to cancel the arrangement after a term of years. By this means the collection was to receive special attention, the Museum setting aside for it a room to which Columbia classes and instructors should have access, and many of the specimens were to be placed upon general exhibition in the new hall of fossil fishes. And as an evidence of the closer ties between the Museum and the University, it may be mentioned that Dr. Bashford Dean, a student of Professor Newberry, was placed in charge of the collection as honorary curator.

The palæontological museum of the University has recently received several important additions to its collections. Among them are a fine slab of Uintacrinus showing several complete specimens; two plaster casts of Eurypterus prepared under the direction of State Palæontologist Clarke, by whom they were presented; a collection of characteristic Eocene fossils from the Paris Basin, from Mr. W. C.

Crane; and a suite of post-Pliocene fossils from Dead Man's Island, California, from Mr. J. H. Wilson, a graduate student in Palæontology.

A new course, to be known as Geology 20, and which has for its object the study and investigation of the palæogeography of North America, will be offered next year. The course is a continuation of the work of the courses in North American stratigraphy (Geology 8) and North American fossil faunas (Geology 16).

During the winter Professor Kemp has revised and partly rewritten the text of his "Handbook of rocks," which is now passing through the press. Besides being considerably enlarged, so as to include the results of the most recent advances in the science, the work is further increased in usefulness by the addition of a number of illustrations. The geologic folio of the eastern Adirondack region, on which Professor Kemp has been engaged for some time, is also nearing completion.

Dr. Julien has completed his investigations on the amphibole schists of Manhattan Island, and published the results in the Bulletin of the Geological Society of America. He has also carried forward investigations on the formation of sandstones.

During the winter and spring a collection of rocks illustrating the stratigraphy of the United States has been arranged by Dr. Julien, with the assistance of Drs. Grabau and Maury, in table cases in Room 104 Schermerhorn. A similar collection to illustrate the geology of Manhattan Island has also been arranged and placed on exhibition in Room 104 Schermerhorn by Dr. Julien.

Considerable progress has been made in the study of the mid-Devonic fauna of Michigan, from the material gathered during four seasons of field work. In this study Professor Grabau has been ably assisted by Mr. Edwin Kirk, who together with Messrs. M. I. Goldman, H. W. Shimer (now or formerly in Columbia), and F. W. Cooper of the Michigan Survey, aided in the field work. Miss Rena B. Johnson has again been engaged by the State of Michigan, and is continuing the preparation of the drawings for the monograph by Professor Grabau on these faunas. Professor Grabau has also continued investigations on the phylogeny of Gastropoda. The results of past investigations on "The phylogeny of Fusus and its allies" were published during the winter by the Smithsonian Institution.

Dr. Charles P. Berkey has worked up his field notes on the geology of the Uintah Mountain region, made during the last field season. Besides this he has arranged an extensive collection of petrographic slides for the use of students in the advanced courses.

Dr. Carlotta J. Maury has been employed during the winter on the palæontological collections, and has completed the arrangement of the Van Nostrand collection of shells, which is now on exhibition in Room 101 Schermerhorn. The labelling and cataloguing of the collections is actively going forward.

By the removal of the collection of fossil fish, Room 104 Schermerhorn has become available for laboratory purposes. At present the table space is still inadequate for the large classes in elementary palæontology and stratigraphy (Geology 1 and 2) doing work here. The collection of models and relief maps belonging to the department, which was heretofore unprotected, has been placed in the glass cases made vacant by the removal of the fossil fish, and has thus become accessible for study without the risk of damage to which the models were formerly exposed.

Students in the advanced courses in stratigraphy and palæontology are planning an excursion with Professor Grabau into the Helderberg range during the last week of May, to study the Siluric and early Devonic strata of such classic regions as Indian Ladder, Countryman's Hill, and Becraft Mountain. On May 30 they will join Professor Kemp and students from the School of Mines and the College, at Kingston, N. Y., where systematic fieldwork will be carried on for a week. The region about Kingston and Rondout is well adapted for field work, being characterized by a variety of tectonic features and a considerable range of fossiliferous strata.

Professor Grabau will spend the month of June in the Schoharie valley, to complete investigations for the monograph of that region to accompany the map prepared during the last field season. This will be published by the New York State Survey, in a form similar to the Niagara Falls monograph prepared for the State some years ago by Professor Grabau. During July and part of August Professor Grabau will be engaged at the Summer Session of the University, where, with the assistance of Dr. Maury, he will conduct three courses: Geology S1a, general physical and dynamical geology; Geology S1b, general stratigraphic and palæontologic geology; and Geology S7, invertebrate palæontology.

Field investigations will be carried on during the summer by graduate students as follows: Mr. Charles F. Swartz, on the upper Devonic and lower Carbonic formations of Pennsylvania and Ohio; Mr. M. I. Goldman, on the lower Ordovicic formations of the Black River, N. Y.

Volumes x and xi of the Contributions from the Geological Department have been completed and distributed. Also the following numbers of volume xii: 101A, Geology of the San Pedro District, Mexico, George I. Finlay; 101B, On the classification of sedimentary rocks, A. W. Grabau.

Department of Mathematics.—The work of the Department of Mathematics may be conveniently divided into three principal divisions:

I. Undergraduate work: This consists of courses of instruction intended primarily for the students of (1) Columbia College, (2) Barnard College, (3) Teachers College, and (4) Schools of Applied Science.

II. Graduate work: This consists of advanced courses given under the Faculty of Pure Science and intended primarily for candidates for the degrees of Master of Arts and Doctor of Philosophy.

III. Other work: This falls principally under the following heads—(1) General educational administration, (2) Departmental administration, (3) Courses in the Summer Session, (4) Extension courses, (5) Mathematical research, (6) Administrative work in connection with scientific societies, (7) Editorial work in connection with mathematical journals.

The staff of the Department at present consists of fifteen officers: four professors, three adjunct professors, six tutors, and two assistants.

The total number of courses given by the Department during the past year has been 31. Of these 9 were given in Columbia College and the Schools of Applied Science, 7 in Barnard College, 6 in Teachers College and 9 under the Faculty of Pure Science. The total number of hours per week of instruction given by the Department was 148, of which 82 were given in Columbia College and the Schools of Applied Science, 27 in Barnard College, 14 in Teachers College, and 25 under the Faculty of Pure Science. The number of hours depends in part on the fact that so many students attend some of the courses that it is necessary to arrange for several sections. Mathematics A, for example, which is required of Freshmen in Columbia College and Barnard College, is divided into six sections at Columbia and four sections at Barnard. Again, the first-year class of the Schools of Applied Science attend Mathematics in eight sections, and the second-year class in six sections.

The total number of students exclusive of summer session and extension students, receiving instruction in Mathematics during the past academic year was 798 of whom 198 were in Columbia College,

352 in the Schools of Applied Science, 124 in Barnard College, 104 in Teachers College and 20 in the School of Pure Science. Of these last, ten were pursuing mathematics as a major subject for the degree of Doctor of Philosophy.

To refer briefly to the activities of the Department outside of the regular courses of instruction attention may be called to the fact that Professor Van Amringe, the head of the department, serves also as the Dean of the College and as a member of the University Council. Professor Fiske is Secretary of the College Entrance Examination Board, and several other members of the Department serve on various University and Faculty committees.

The ordering of books for the mathematical collection in the University Library requires special attention, and the care of the departmental seminar-room, or reading-room, is another important responsibility. It may be worth while to mention in passing that every mathematical journal of importance in the world is accessible to the students of mathematics at Columbia; in the case of several of the more important journals two or even three copies are received. The Department is also in possession of a considerable number of interesting mathematical models. Unfortunately, however, many beautiful models have been constructed abroad during the past few years which the Department has not had the means to procure. It is very desirable that in the near future there should be provided a model-room with a complete and up-to-date collection of models.

In the Summer Session eight courses of instruction are offered by Professor Maclay, Professor Keyser, Dr. Kasner and Dr. Ling. In the extension department courses are given by Professor D. E. Smith and Dr. Ling.

The members of the Department devote a considerable part of their time and energy to the prosecution of mathematical research. During the past year papers have been presented to the American Mathematical Society by Professor Cole, Professor Keyser, Dr. Kasner and Dr. Findlay. A list of the publications of the members of the Department will be found elsewhere in this volume of the QUARTERLY. Several dissertations for the doctorate have been in preparation during the current year and reflect in a way the active interest of the Department in research.

It is perhaps unnecessary to recall the fact that the American Mathematical Society was founded under the auspices of the Department of Mathematics of Columbia University. Professor Van

Amringe was the first president of the Society and Professor Fiske was the first secretary. The second president was Dr. Emory McClintock, a graduate from Columbia College in the Class of 1859. The fifth president was Professor R. S. Woodward of the Department of Mechanics of Columbia University, and the ninth or present president, is Professor Fiske. Professor Cole has been Secretary of the Society since 1895, and Dr. Findlay is now serving as assistant secretary.

During the past academic year a new society to be known as the Association of Teachers of Mathematics of the Middle States and Maryland was established under the auspices of the Department of Mathematics of Columbia University. Largely through the efforts of members of the Department a conference was held at Columbia University on May 23, 1903, in which a considerable number of teachers of mathematics participated, and as a result it was resolved to form a society of teachers of mathematics. The organization meeting of the society was held November 28, 1903, and was attended by about 250 teachers; Professor D. E. Smith was elected President. The second meeting was held April 2, 1904, and was also very largely attended.

It may be of interest to call attention also to the fact that a part of the time of three members of the Department is devoted to editorial work in connection with mathematical journals, Professor Cole serving as editor of the *Bulletin of the American Mathematical Society* and Professor Fiske and Dr. Kasner serving as editor and assistant editor respectively of the *Transactions of the Mathematical Society.*

Department of Mineralogy.—During the year instruction has been given to 151 undergraduates and 7 graduates, in four professional courses, two graduate courses, one collegiate course and one extension course. The total number of students is somewhat smaller than last year, this being due to the transfer of Course 6 from the second to the third year, in consequence of which it was only given to a few men this year. There has been an improvement in the quality of the work done in the professional courses, due in part to the better light obtained in the present assigned laboratory hours, but also in part to changes which have been made to ensure adequate and properly proportioned practice in all phases of the work and to bring into play all the facilities of the Department.

Owing to the position of the museum on a different floor from the working rooms there has been noted a tendency to rely only upon the student collections composed of specimens of poorer grade. To avoid this

and to insure that comprehensive view of the relations between species which is given by a carefully planned museum, the students were sent to the museum in squads each week and given a list of questions to be answered, and an examination was held involving these questions and the recognition by sight alone of typical museum specimens in little glass covered cases. The results have been very satisfactory and it is proposed next year also to do most of the microscopic and crystal work in the museum. That knowledge of minerals which is of most value to an engineer or chemist can only be obtained by inspecting, handling and testing, and the greater the number and variety of the specimens the better. In addition to those in the museum there are in use in our work nearly 25,000 specimens which are varied each year by the substitution of new for destroyed specimens and by the addition of new localities and varieties. Especial attention has been given this year and last to devising sets of specimens to be examined with a view to emphasizing particular points that it has been found are not clearly grasped by lecture, illustration or use of text-books. For instance, the constancy of interfacial angles, the symmetry of crystals as shown by rough stereographic projection, the value of the hand lens in studying small crystals, the optical character, such as extinction, interference, in cleavages and sections.

Course 3, hitherto conducted as a short course differing from the professional courses chiefly in length, will hereafter be in charge of Dr. Rogers and will be differentiated so as to deal rather with principles and methods than with the economic features.

Professor Moses has conducted this year on Saturdays an extension course which is designed to give school teachers and others a knowledge of the principles, a sight knowledge of the fifty most common minerals and some practice in determination of species in a list of about two hundred.

Three new species were discovered and described by Professor Moses, all from the Texas mercury mines, and all occurring as nearly microscopic crystals. The most interesting of these, an oxychloride of mercury, $Hg_6Cl_2O_2$, occurring in beautifully developed isometric crystals, has been named Eglestonite, in honor of Professor Thomas Egleston, founder of our School of Mines. To a second mineral, occurring in yellow monoclinic crystals, with the formula Hg_2ClO, the name Terlinguaite was given, and to some red orthorhombic crystals, of the formula HgO, the name Montroydite.

Professor Moses has also completed and published a study of the

crystallization of molybdenite, involving crystals from six localities and a review of the previous measurements.

Dr. Rogers has devised and described a method for exact expression of crystal habit in so-called "habit symbols." He has also in preparation a paper on determination of crystals by habit, and has commenced an investigation on the determination of minerals in crushed fragments by means of their optical properties, which promises to be an interesting line of investigation and may prove of practical value in our student work.

New editions are in preparation of Moses and Parsons' "Elements of mineralogy, crystallography and blowpipe analysis" and of Luquer's "Minerals in rock sections." Tables for use in sight recognition of the 70 most important minerals and others, for use in recognition of common mineral species from the system angles and habit of their crystals are in preparation.

The department has purchased Wulfing's improved axial angle apparatus, which was modified according to our sketch, so as to furnish also a means for accurate measurement of indices of refraction by total reflection.

Further additions have been made to the large collection of mineral sections, especially in the line of duplicate suites for illustrating important optical characters.

Although practically no purchases of museum specimens have been made during the year, over three hundred specimens have been added from gifts and exchanges, including suites of the new Texan oxide and oxychlorides of mercury of crystallized molybdenite and of the Joplin District, Mo., minerals collected by Dr. Rogers, and uraninite from Woods mine, Colorado. A few new species and varieties, Hellandite, Kunzite, Eglestonite, Montroydite, Terlinguaite, are included.

Dr. Luquer, instructor in mineralogy, who has been connected with the department for seventeen years, has been given six months leave of absence and promoted to the grade of adjunct professor. During his absence his classes have been conducted by Dr. Rogers.

Mr. John Crawford, Jr., assistant in mineralogy, will leave at the end of the year, to follow his profession of mining engineer. He will probably be succeeded by Mr. Louis G. Michael, now university scholar in mineralogy.

Department of Physics.—The arrival and installation of new apparatus for the Phœnix Research laboratories are progressing rapidly and the close of the year will show a great advance. Owing to the kindness

of Dr. Day of this Department, the equipment of the shop is greatly helped by having his precision lathe and planer placed at its disposal. In anticipation of the advanced courses of next year considerable apparatus has been acquired for the study and demonstration of the phenomena of the discharge of electricity through gases, as well as of the nature and behavior of gases under ionising influences.

Dr. Tufts, at present John Tyndall Fellow, is studying with Professor Curie in Paris, and will return for the Summer Session. He has made a study of the teaching of physics in secondary schools in Europe.

Owing to the widespread interest in radium this Department will make at the St. Louis Exposition a very complete exhibition of this wonderful substance, and the minerals associated with it, as well as apparatus and materials used in investigations connected with the questions which it has developed.

Department of Zoology.—The new *Journal of Experimental Embryology,* the means for which were provided through the efforts of the Department, is now successfully organized, and the first number is expected to appear by the first of May; the second number will follow during the month of June. In these will appear an extended paper by Professor Wilson, dealing with the results of the experiments on mollusk eggs, which he carried on during the past summer at Naples.

The present summer bids fair to be an active one. Professor Wilson will continue his researches in experimental embryology at the Naples Zoological Station, later at the laboratory at Roscoff, and he plans to attend both the International Zoological Congress at Zürich, and the meeting of the British Association at Cambridge. At both of these congresses Professor Osborn will be present, and before the latter he is to deliver the general evening lecture. During his absence abroad he plans to visit some of the more important museums in the interest of his forthcoming memoirs on fossil mammalia. Professor Calkins will also be present at one or both of these congresses during his trip abroad. He has been invited to lecture before the British Association upon "Protozoa with reference to disease," an invitation the result of his recently published memoir on the "Life cycle of the organism of smallpox." His especial object abroad, however, is to visit a number of zoological laboratories and to confer with specialists in the study of protozoa. The other members of the department will continue their work at various zoological stations on our own coast. Professor Dean will probably be at the Hopkins laboratory in California, completing his memoir on the primitive fish, Chimaera. Here, too,

Professor Morgan expects to spend several months. Professor Crampton will participate in the work at the Cold Spring Harbor laboratory, and will have charge of the course in embryology. It may be mentioned that at this laboratory will be extensively developed the experimental study of variation which for years Professor Crampton has been actively advancing. Mr. Yatsu will again visit the Harpswell laboratory in Maine, and continue his studies on experimental embryology. Drs. Strong and McGregor will, as usual, take part in the work of instruction and research at Wood's Hole. It may be mentioned that Dr. Sumner, a former fellow in zoology, will again direct the work of the Fishery Commission laboratory at that place.

During the past semester the investigations carried on by the graduate workers in the laboratory include studies on the life history of the sporozoa; on the germ cells of Pedicellina; on cytological phenomena in the eggs of nemertines; and on the development of the vascular system in the Australian lung-fish.

It may be mentioned that the recently concluded seminar on the "Problem of consciousness in animals" was a notably successful one. It extended over three months with weekly evening meetings and maintained an attendance averaging forty; and the thanks of the zoologists are due to members of the departments of psychology and botany and to others from outside the University for their active participation in the work.

Fine Arts

General.—The second year's course of public lectures on the fine arts came to a close on April 18, with the fourth lecture of the series by Mr. Edward R. Smith of the Avery Library on "The art of the Renaissance." The attendance has been better maintained this year than last, showing that the course meets a real want and not mere curiosity. The parallel course on poetry and *belles lettres* was not continued after February 24, owing to the impossibility of arranging for the series of lectures on music which had been originally projected. The lecturers for the two courses since February have been: Professor J. R. Wheeler, eight lectures on "The acropolis of Athens"; Professor A. V. Churchill, two lectures on "Conventions in art"; Mr. E. R. Smith, four lectures on "The Renaissance"; Dr. C. H. Page, one lecture on "The poetry of Ronsard"; Dr. J. E. Spingarn, three lectures on "Love in the poetry of the Renaissance."

School of Architecture.—The results of the reorganization of the work in free-hand drawing are showing themselves in a marked im-

provement in the quality of the work done as well as increase in the amount and advance in the grade of work given out in each year. This is noticeable in all four classes, but particularly in the second and fourth years. The modeling which occupies eight weeks of the second term in the second year, under Mr. E. R. Smith of the Avery Library, has reached a level of performance not heretofore equaled in the school, and a recent exhibition of the work in the rooms of the school, consisting partly of copies from antique figure reliefs, and partly of architectural decorations, elicited general admiration. The fourth-year students have meanwhile been studying figure drawing from the antique and from life, at the National Academy of Design, under the instruction of Mr. Francis C. Jones, with results equally gratifying. The third year drawing from the cast, in the attic studio fitted up last summer, has also been very successful, in spite of the cramped and often insufficiently heated quarters.

The system of awards and of registration and grading of designs in the fourth year, announced in the last QUARTERLY, has proved its value in the enhanced seriousness and improved quality of the work submitted this year, and will probably be extended next year to the third year design. All the awards have been made by juries consisting in each case of the instructor, Mr. Delano, and two practising architects specially invited to perform this service. The general result has been to stimulate towards the best possible performance, while with the former system of percentage marks many students seemed quite content if they received the passing mark of 6.

Among the lecturers who have given their valuable services in the courses grouped under the general title of "Theory of architecture" have been Mr. E. H. Blashfield on "Tone and color in the masterpieces of decorative painting"; Mr. D. Maitland Armstrong on "Stained glass"; Mr. Arnold W. Brunner on "Hospital design"; Mr. H. F. Hornbostel on "The influence of modern steel framed construction on architectural design"; Mr. W. A. Boring on "The country-house."

The graduating thesis designs will be upon the usual variety of subjects. Among them are a University Settlement Building; a City Hospital; a National Mausoleum; a Railway Terminal; an Art Museum, etc.

There are four students enrolled as candidates for the master's degree in the School of Architecture, two of whom are pursuing the fifth-year course in design.

The alumni of the school will have met in general session, before this goes to press, to pass upon the work of the preliminary committee

on organization, which has prepared a constitution and outlined the general form and character of the proposed association of the alumni. It is proposed that it shall be known as the Society of Columbia University Architects, and it is believed that it will provide an efficient means for cooperation and mutual helpfulness between the school and its graduates.

Barnard College

Department of Botany.—The work of the Department has gone on as usual. All the courses offered have been elected with the exception of that on the morphology of algæ. The advanced course in the physiology of plants has been extended and is now offered as two half courses in alternate second half-years. For the first time, therefore, the work in the physiology of nutrition has been fully given. Besides the regular courses of instruction, voluntary work in the morphology and determination of representative uncultivated plants from the region has been provided for those who wished to acquaint themselves with some of our native forms. One advanced student is working on a problem connected with the stimulation of plants under the influence of chloroform, while the work of a former student on the respiration of fungi has been completed and is soon to be published. As a member of the committee for the revision of the nomenclatorial rules relating to plants, Dr. Hazen has aided in the drawing up of the new code of nomenclature. Together with Dr. MacDougal of the N. Y. Botanical Garden, Dr. Richards has on hand an investigation of the effect of carbon-monoxide and other gases on plants. A variety of apparatus has been added to the permanent equipment of the Department.

Department of Chemistry.—In the Department of Chemistry new courses are offered in qualitative and quantitative analysis. The course in qualitative analysis consists of three hours of lectures and eight hours of laboratory work for the first half year. Two hours are devoted to lectures and discussions of analytical methods and one hour to lectures on theoretical chemistry. In these lectures the matters treated are such as best illustrate the analytical methods used in the laboratory; *e. g.*, the theory of solutions, the laws of mass action, chemical equilibria, etc. This series of lectures serves as an introduction to a more extended course in physical chemistry.

The course in quantitative analysis consists of three hours of lectures and eight hours of laboratory work for the second half year. In

the laboratory, the exercises are chosen to show the important principles and methods of analytical work, both gravimetric and volumetric. Special attention is paid to separations and analyses by electrolytic methods.

The course in advanced organic chemistry will be extended next year to three hours of lectures and six of laboratory work throughout the year. The course has been particularly arranged for those students who wish to make organic chemistry a major for the degree of master of arts. To such students the organic seminar at Columbia University will be open and this course will be required for the degree.

Department of Classical Philology.—The resignation of W. H. J. Burchell, Jr., tutor in classical philology, led to some changes in the teaching force of the Department for the academic year 1903–4. Miss Gertrude M. Hirst, Ph.D. (Col.), was promoted from assistant to tutor in classical philology, and Mr. Stephen A. Hurlbut, A.M. (Wisc.), who had held a University fellowship in Greek, was appointed lecturer in classical philology. These appointments are continued for the academic year 1904–5.

Under the Department 197 students have taken Latin during the current academic year, of whom 93 are in the elective courses; and 72 have taken Greek. Five graduate students are pursuing undergraduate courses in Greek in Barnard College. The courses elected by them, in varying numbers, are Greek 3, 7, 8, and 31. The largest attendance in Greek is, as usual, in course B (23 students). In Latin it is very noticeable that, whereas the total number of students that elect courses 1 and 2 is 47, of these a very large proportion (30 in the first half-year and 24 in the second) have taken an extra hour weekly in Latin prose composition. The sound training that they had received in the prose composition of Latin A and B has been evinced by the work of these students.

In the present Senior Class four students have written graduation theses under this Department. One of these students is also a candidate for final honors in Classics.

Of the foundation members of the Department, Professors Earle and Knapp are conducting courses under the Faculty of Philosophy, Mr. Earle having charge of the Greek section of the classical seminar and Mr. Knapp conducting the course in Roman Satire known as Latin 18.

Professor Knapp is also president for the year of the Classical Club of the University, in the meetings and discussions of which the other members of the Department have also taken part.

Department of English.—The total registration in the courses in English for the year 1903–1904 is 426. Of this number, 189 are in the prescribed courses, English A and B, and 237 in the elective courses. An analysis of the elective courses shows that 54 students are pursuing composition, 25 are interested in the linguistic side of English, and 158 are studying literature. These figures do not take account of double registration. The two courses given for the first time this year, English 9, argumentative composition, and English 22, the English novel of the nineteenth century, have had respectively 10 and 28 students.

In the future, courses in English will be arranged on a somewhat different plan from the present. The prescribed Freshman course will be introductory to the other courses in the curriculum. Those in composition will be the present course prescribed for Sophomores, two electives for Juniors and Seniors, one in argumentation, the other in more miscellaneous work, and, as soon as the matter can be arranged, a course in elocution. The linguistics will be confined to an elective, for Juniors and Seniors, in Anglo-Saxon and historical English grammar; properly qualified Seniors will be allowed to continue the subject in the graduate school. In literature, the courses in American literature and Shakspere will be continued as at present, but the others will give place to three courses in the history of English literature, in the Seventeenth, the Eighteenth, and the Nineteenth Centuries, and to two respectively in the history of the English novel and the history of the English drama. The rearrangement makes the system almost precisely parallel to the new curriculum in English at Columbia College, and the thirteen courses offered under it,—which amount to sixteen in view of an allowed and uncompelled repetition in the electives in composition and the opening of a graduate course to properly qualified Seniors,—are deemed adequate for several years to come. The electives in American Literature and English literature in the nineteenth century are to be open to Freshmen and will be prerequisite to higher courses.

Department of Geology.—This year, for the first time, a lecturer in geology has been appointed on a Barnard foundation. Dr. I. H. Ogilvie has given a course in general geology, comprising two lectures and one afternoon of laboratory or of field work weekly, throughout the year. This course is in a general way equivalent to geology 2 in Columbia College and is designed both to meet the requirements of students whose main interest is in the direction of a philosophic con-

sideration of the earth's history, and also to serve as a foundation for those who may wish to become specialists in geology.

A geological laboratory has been fitted up on the second floor of Brinckerhoff Hall. It is equipped with an excellent working collection of rocks, minerals, and fossils. This collection consists in part of specimens presented by Professor Kemp of Columbia University; in part, of Dr. Ogilvie's private collection. The combination provides material highly useful both for instruction and for investigation.

A departmental library has been started, with a nucleus of about 300 volumes. The library is also provided with a large number of the maps and geological folios published by the United States Geological Survey.

Department of Mathematics.—A new elective course, on "The fundamental concepts of modern mathematics," will be given next year by Dr. Kasner. The course, which is intended primarily for seniors, will deal with some general aspects of recent investigation and will serve as an introduction to graduate work.

At various meetings of the American Mathematical Society during the present year the following papers have been presented by officers of this Department: By Professor F. N. Cole, "On the factoring of large numbers"; "The groups of order $p^{\alpha}q^{\beta}$." By Dr. Edward Kasner, "A class of conformal transformations"; "Notes on the infinitesimal geometry of surfaces"; "Partial geodesic representation"; "Investigations on isothermal systems"; "The geometry of ordinary differential equations"; "Galileo and the concept of infinity." By Dr. William Findlay, "The Sylow subgroups of the symmetric group." At the St. Louis meeting of the American Association for the Advancement of Science Dr. Kasner submitted a paper on "An extension of the group concept."

Professor Cole is serving during the present year as chief examiner in mathematics of the College Entrance Examination Board. Dr. Kasner has continued to serve as one of the editors of the *Transactions of the American Mathematical Society*. Dr. Findlay has been appointed assistant secretary of the Society.

Department of Physics.—The Department of Physics at Barnard College has had 35 students enrolled in the first course, general physics, 6 students in the advanced courses, and 5 graduate students in physical chemistry, one of whom is making physical chemistry her major subject for the master's degree. The appropriation has been expended for quantitative apparatus for the courses in mechanics, physical chemistry, and sound.

The Department has received from Dr. Laudy a very complete set of apparatus for illustrating the phenomena of polarized light, and from Professor Chandler some historical and other electrical apparatus. Mrs. Collord, the donor of Fiske Hall, has most generously provided for an unusually complete equipment for the scientific study of sound. The collection includes apparatus for illustrating the whole theory of the production of tone in all classes of musical instruments, for the analysis and synthesis of tones, and for quantitative experiments in sound.

Teachers College

The Teachers College announcement for 1904–1905, including the annual catalogue, has just appeared and permits a comparison of registration for the past two years. The total number of graduate students enrolled during the present year is 106 compared with 94 for the previous year. The number of professional students is 413 and 373 respectively; for the collegiate course, 88 and 65 respectively; from other faculties of the University, 111 and 189. The total of resident students had increased from 729 to 902. The number of graduate students continues to increase both in numbers and in the variety of interests and of schools represented. Compared with other departments of the University, the effect of the development of this line of work of the College is seen. An analysis of major subjects of the graduate students of the entire University shows the following choice: Education 100, English 93, Philosophy 54, History 53, Constitutional Law 51, Sociology 46, Economics 36, Latin 30, Chemistry 26, German 25; twenty-two other subjects have a total registration of 229.

The distribution of students within the college as given in the total departmental registrations is given on the following page.

The departmental registrations have increased in the past four years as follows: 2542, 2833, 3367, and during the current year to 3577.

A better indication of the work that the college is doing for its students and for education is given in the work of the appointment committee. Within the past month the principal of one of the largest state normal schools in the West, and also the president of one of the best known technical and industrial institutes have been chosen from graduates of the college, one yet a student, the other a fellow elect for the coming year.

	1899–00	1900–01	1901–02	1902–03	1903–04
Division of Education	666	—	—	—	—
History and Philosophy	—	322	329	308	454
Educational Administration	—	48	78	41	52
Educational Psychology	—	170	241	465	517
Elementary Education	—	224	338	114	97
Secondary Education	—	—	—	69	30
Department of Biblical Literature	—	—	—	12	20
" " Biology	112	123	122	194	188
" " Domestic Art	66	129	119	117	111
" " Domestic Science	114	212	206	213	219
" " English	154	208	240	298	336
" " Fine Arts	329	364	311	394	332
" " French and German	6	33	66	125	178
" " Geography	70	82	68	57	37
" " History	141	134	149	191	180
" " Kindergarten	72	101	122	93	74
" " Latin and Greek	22	35	30	26	23
" " Manual Training	97	133	152	227	211
" " Mathematics	44	25	81	101	123
" " Music	70	52	61	92	144
" " Physical Education	89	87	86	188	189
" " Physical Science	71	60	34	39	62

The summary of appointments made through the committee during the past three years (1900–1903) is as follows:

	1900–1901	1901–1902	1902–1903
Colleges and Universities	11	14	18
Normal Schools	11	11	15
Superintendents of Schools	1	3	2
Supervisors and special teachers	20	41	90
Secondary Schools	52	90	66
Elementary Schools	28	45	56
Kindergarten	7	11	8
Miscellaneous positions	10	9	16
	140	224	271
Less names counted twice	13	23	36
Total	127	201	235

The Appointment Committee has also supplied a large number of tutors, to the considerable assistance of students who were paying their way through college.

The College now offers fifty-two courses in education and seventy-one related courses. Few additional courses are announced for next year, the list being given under University Legislation.

Changes in the Faculty for next year are, for the most part, those in rank only. Beside the previous announcement of appointment of Professor Thorndike to a full professorship, those of Dr. J. A. MacVannel, Dr. Hermann T. Vulte, and of Herbert V. Abbott to adjunct

professorships have been made. Professor Arthur W. Dow, formerly of Pratt Institute, who is to take charge of the Department of Fine Arts, is now on leave of absence for the year, pursuing study of design in Japan and India. Professor Richards, of the Department of Manual Training, is also in Japan and India, studying native arts and crafts. Professor Woolman, of the Domestic Art Department, is on a leave of absence for the remainder of the current year, investigating village industries and the arts and crafts schools of Belgium, France and Switzerland, with especial reference to her work as Directress of the Manhattan Trade School.

Plans have been completed for a new educational journal to be known as *The Nature-Study Review,* and the first number is expected in January next. This journal will deal with all the so-called science studies of the elementary schools, regarding them as phases of nature study in the broad sense rather than as abridgements and superficial surveys of the organized sciences of the higher schools. The new journal will be directly in charge of an editorial committee, composed as follows: Professor L. H. Bailey of Cornell University (Agriculture), Dr. H. W. Fairbanks of California (Geography), Professor C. F. Hodge of Clark University (Biology), Professor J. F. Woodhull of Teachers College (Physical Science), and Professor M. A. Bigelow of Teachers College (Managing Editor). This committee will be assisted by a group of over fifty collaborators and advisors, of which the following are connected with Columbia University: Professor R. E. Dodge (Geography), Professor William Hallock (Physics), Professor F. M. McMurry (Elementary Education), Professor F. E. Lloyd (Botany), and Miss Ada Watterson (Biology).

During the coming summer Professor David Eugene Smith will attend the International Congress of Mathematicians at Heidelberg, in August; the meeting of the *Deutsche Mathematische Vereinigung,* of which he is a member, at Breslau, in September, and also the International Congress of the History of Sciences, of which he is one of the two official American representatives, at Geneva, in September. Professor Smith has recently been made American editor of *L'Enseignement Mathematique* and elected editor of the *Bulletin of the American Mathematical Society* and Librarian of this Society. Besides the three text books on elementary mathematics published by Professor Smith during the year, he has announced for publication "A portfolio of portraits of famous mathematicians."

Professors Dutton and Churchill will represent the College at the

International Conference on Teaching Fine Arts, at Berne, Switzerland, in August.

A volume on "Thomas Plätter and the educational renaissance of the sixteenth century" by Professor Monroe is announced for the International Education Series.

The most recently issued syllabus of the extension department is by Professor Thorndike on "Fundamental problems of human nature." The last number of the College Record was on "Music in the Schools" by Professor Farnsworth; the forthcoming issue will be by Professor McMurry and will relate to "Experimental work in the elementary school."

At the spring meeting of the New Jersey High School Teachers Association at Newark on April 23, Professors Bigelow, Dodge and Woodhull discussed the subject of science instruction in secondary schools, from the view point of higher institutions. Lectures have also been given by Miss French at the Vail-Deane School, Elizabeth, N. J., on "The possibilities of English work in the kindergarten"; and by Miss O'Grady at the Easter meeting of the Ontario, Canada, Educational Association for Kindergartners and Primary Teachers. Professor Kinne and Dean Russell delivered lectures in a course before the Carnegie Institution at Pittsburg during April and May.

General

The United States Minister at The Hague has forwarded to the University a copy of the royal order of February 12, 1904, whereby the degree of Bachelor of Arts of the following universities in the United States is recognized as admitting the holder to pursue his studies at any of the universities of the Kingdom of Holland: The University of California, the Catholic University of America, the University of Chicago, Clark University, Columbia University, Cornell University, Harvard University, Johns Hopkins University, Leland Stanford, Jr. University, the University of Michigan, the University of Pennsylvania, Princeton University, the University of Wisconsin, and Yale University.

Students and alumni of Columbia University, who visit the Louisiana Purchase Exposition this summer, can have their mail addressed care Columbia University, Palace of Education, St. Louis Exposition, St. Louis, Mo. A regular attendant will be in charge of the Columbia exhibit.

SUMMARIES OF UNIVERSITY LEGISLATION

The Trustees

March Meeting.—It was resolved that the thanks of the Trustees be tendered to Mrs. Helen Hartley Jenkins, of Morristown, N. J., and to Marcellus Hartley Dodge of the Class of 1903, for their generosity in agreeing to increase their gift for the erection of Hartley Hall, from $300,000 to $350,000.

The thanks of the Trustees were also tendered to Mrs. Sarah M. Toppan of Cambridge, Mass., for her gift of $4,000 to establish the Robert Noxon Toppan Prize in Columbia University, in accordance with the terms of her letter to the Treasurer, dated January 18, 1904.

The thanks of the Trustees were voted to George Crocker for his gift to enable the students in mining of Columbia University to enjoy exceptional privileges to study practical work in mining during the Summer months; also to Mr. William G. Low, '65, for a gift of $250 for the purchase of books on maritime and international law, and to Mr. William A. Pomeroy, E.M., '93, for a gift of £21 to the Department of Mining.

The President submitted a form of a proposed agreement providing for the affiliation with the University of the College of Pharmacy and the same was approved.

The President reported the establishment and incorporation of the "Journal of Experimental Zoology," under an agreement giving the University the right to nominate a director of the corporation.

The annual report of the Vanderbilt Clinic was submitted.

Amendments to the Statutes were adopted, establishing four "William H. Vanderbilt Scholarships" in the School of Medicine and four Faculty Scholarships in the same school and fixing the stipends at $250.

The following sums were appropriated for the maintenance and operation of the Corporation for the fiscal year ending June 30, 1905, viz.:

For Educational Administration and Instruction, Buildings and Grounds, the Library, and Business Administration	$1,053,544 08
For interest	224,090 00
For taxes and other charges, exclusive of interest, upon the Williamsbridge, Sixteenth Street and Loubat properties, and for annuities	97,940 00
Making in all the sum of	$1,375,574 08

The following appointments were made: Cornelius Rübner, Professor of Music; Jefferson B. Fletcher, A.M., Professor of Comparative Literature, with a seat in the Faculty of Philosophy; Charles Lane Poor, Ph.D., Professor of Astronomy for one year, with a seat in the Faculty of Pure Science; Edwin B. Cragin, M.D., Professor of Gynecology for one year; Harry MacMahon Painter, A.B., Ph.B., M.D., Professor of Clinical Obstetrics, during the pleasure of the Trustees, with a seat in the Medical Faculty; Gorham Bacon, A.B., M.D., Clinical Professor of Otology; Vladimir G. Simkhovitch, Ph.D., Lecturer in Russian History for one year.

Promotions were made as follows: Harold Jacoby, Ph.D., now Adjunct Professor, to be Professor of Astronomy for one year, with a seat in the Faculties of Columbia College, of

Applied Science and of Pure Science; Bashford Dean, Ph.D., now Adjunct Professor of Zoology, to be Professor of Vertebrate Zoology, with a seat in the Faculty of Pure Science; Gary N. Calkins, Ph.D., now Adjunct Professor, to be Professor of Invertebrate Zoology, with a seat in the Faculty of Pure Science; Edmund H. Miller, Ph.D., now Adjunct Professor of Chemistry, to be Professor of Analytical Chemistry, with a seat in the Faculties of Applied Science and Pure Science; Marston T. Bogert, Ph.B., now Adjunct Professor of Chemistry, to be Professor of Organic Chemistry, with a seat in the Faculties of Applied Science and Pure Science; Henry E. Crampton, Ph.D., now Adjunct Professor of Zoology, to be Professor of Zoology in Barnard College; Frederic S. Lee, Ph.D., now Adjunct Professor of Physiology, to be Professor of Physiology; Eugene Hodenpyl, M.D., now Instructor in Pathology, to be Adjunct Professor of Pathological Anatomy; Maximilian K. Kress, A.M., now Instructor in Architecture, to be Adjunct Professor of Architecture; William A. Hervey, A.M., now Instructor in German, to be Adjunct Professor of Germanic Languages and Literatures, with a seat in the Faculty of Columbia College; Rudolf Tombo, Jr., Ph.D., now Instructor in German, to be Adjunct Professor of Germanic Languages and Literatures, with a seat in the Faculty of Columbia College; Louis A. Loiseaux, B.S., now Instructor, to be Adjunct Professor of Romance Languages and Literatures, with a seat in the Faculty of Columbia College; Lea McI. Luquer, Ph.D., now Instructor, to be Adjunct Professor of Mineralogy, with a seat in the Faculties of Applied and Pure Science; Bradley Stoughton, B.S., to be Adjunct Professor of Metallurgy for three years, with a seat in the Faculty of Applied Science; George N. Olcott, Ph.D., now Lecturer in Roman Archæology, to be Adjunct Professor of Latin for three years, with a seat in the Faculty of Columbia College and in the Faculty of Philosophy; Joel Elias Spingarn, Ph.D., now Tutor, to be Adjunct Professor of Comparative Literature, with a seat in the Faculty of Philosophy; Leonard Beecher McWhood, A.B., now Tutor, to be Adjunct Professor of Music; Francis Carter Wood, M.D., now Instructor in Clinical Pathology, to be Adjunct Professor of Clinical Pathology; Frederick R. Bailey, M.D., now Instructor in Normal Histology, to be Adjunct Professor of Normal Histology; William K. Simpson, M.D., now Instructor in Laryngology and Chief of Clinic, to be Clinical Professor of Laryngology; Charles Norris, M.D., now Assistant in Bacteriology, to be Instructor in Bacteriology for one year; Augustus B. Wadsworth, M.D., now Assistant in Bacteriology, to be Instructor in Bacteriology; Oliver S. Strong, Ph.D., now Assistant in Normal Histology, to be Instructor in Normal Histology.

Cassius J. Keyser, Ph.D., and George L. Meylan, M.D., were assigned to seats in the Faculty of Applied Science, and Herbert Maule Richards, Sc.D., of the Faculty of Barnard College, was assigned to a seat in the Faculty of Pure Science.

Edward MacDowell, Mus.Doc., tendered his resignation as Professor of Music, from June 30, 1904; Emil A. C. Keppler, A.M., resigned as Assistant in Germanic Languages and Literatures, from February 2, 1904.

April Meeting.—T. Matlack Cheesman, M.D., Class of 1874, was elected a Trustee to succeed Edward L. Trudeau, M.D., resigned.

A vote of thanks was tendered to

O. B. Perry, E.M., Class of 1900, for a gift of $100, and to A. L. Black, Class of 1890, for a gift of $25 to the Special Fund for the Department of Mining.

An invitation from the Case School of Applied Science to Columbia University to be represented by a delegate at the inauguration of President Howe on May 11, 1904, was accepted and the President authorized to appoint a delegate.

The Special Committee on South Field was discharged, and the carrying-out of the plans approved by the Trustees for the development of South Field was referred to the Committee on Buildings and Grounds.

It was resolved that after due consideration of the petition of the students of the College of Physicians and Surgeons, the Trustees regret that they are unable to reconsider the resolution adopted by the Board on January 4, increasing the fees for tuition in the Medical School, for the reason that such increase was and is rendered necessary by the increased expense of maintaining the Medical School, and that such expense cannot otherwise be met; and that the President be requested to acknowledge the receipt of the petition of the students in the College of Physicians and Surgeons addressed to the President and Trustees, and to communicate to the students the substance of the action of the Board.

Chapter XXIII of the Statutes, section 13, as to the Robert Noxon Toppan Prize, was amended.

An additional sum of $333 was appropriated for the Department of Physiology.

George E. Brewer, M.D., Professor of Clinical Surgery, was assigned to a seat in the Medical Faculty upon the recommendation of the Faculty.

Upon the joint recommendation of the Faculties of Applied Science and of Pure Science, the following Professors in the Schools of Applied Science were assigned to seats in the Faculty of Pure Science: Henry S. Munroe, E.M., Ph.D., Professor of Mining; Frederick R. Hutton, E.M., Ph.D., Professor of Mechanical Engineering; Francis B. Crocker, E.M., Ph.D., Professor of Electrical Engineering; William H. Burr, C.E., Professor of Civil Engineering; Henry M. Howe, A.M., B.S., Professor of Metallurgy.

In addition to a number of reappointments, the following appointments were made in Barnard College: Harriet Brooks, A.B., Tutor in Physics; Margaret E. Ball, A.M., Assistant in English.

William T. Bull, M.D., resigned as Professor of Surgery, the resignation to take effect June 30, 1904.

The University Council

November Meeting.—The calendar for the academic year 1904-05 was adopted, with the provision that the last date for registration without penalty under the Faculties of Political Science, Philosophy and Pure Science be made the second Saturday in October, instead of the third Monday in October.

The following questions, laid before the Council at its meeting of April 21, 1903, at the suggestion of the Special Committee of the College Faculty on the Revision of the Curriculum, were made a special order for the February meeting:

Might the degree of Bachelor of Arts be conferred upon the recommendation of the Faculty of Columbia College only for work done entirely under the direction and jurisdiction of that Faculty, or should it be conferred upon the recommendation of the Faculty of Columbia College also for work done during one, two or more

years under the direction of a professional Faculty, upon the certificate of that professional Faculty that the work has been satisfactorily completed? If the latter alternative be preferred, should the degree of Bachelor of Arts be awarded upon the recommendation of the University Council?

The report of the committee of professors appointed by the President on the organization and the academic relations of the proposed School of Journalism was presented, and as amended was ordered transmitted to the Trustees for their information, and for submission to the advisory board of the proposed School of Journalism, when appointed.

By resolution eligibility to candidacy for President's University scholarships, for University scholarships and for University fellowships was limited to applicants who are not over thirty years of age.

The election of Dr. Walter B. James as delegate to the Council, vice Dr. John G. Curtis, elected acting dean of the Faculty of Medicine, was announced.

It was also announced that Dr. Wilford L. Robbins, Dean of the General Theological Seminary, as the result of the agreement between the University and the General Theological Seminary, becomes a member of the University Council, with the privileges of the floor, but without the right to vote.

Professor W. H. Carpenter was elected Secretary for the academic year 1903–04.

The action of the President in confirming the nomination by the Professor of Physics of Frank Leo Tufts for the Tyndall Fellowship for the academic year 1903–1904 was approved.

The following Committee on Commencement, 1904, was appointed: Professor Henry E. Crampton, Chairman; the Superintendent of Buildings and Grounds (Mr. Goetze), and the Secretary of the University (Mr. Keppel).

February Meeting.—The calendar was amended by the suspension of academic exercises on Washington's Birthday, February 22, 1904, and by making Washington's Birthday, February 22, 1905, an academic holiday.

The Regulations for the University degrees were amended by striking out in Section 4, under the Faculty of Political Science, the paragraph beginning: "In his choice of subjects" and the four following paragraphs, and by substituting the following rules:

In his choice of subjects under this Faculty, the candidate whose major subject lies within its jurisdiction is limited by the following rules: A candidate for the degree of Doctor of Philosophy must select one minor subject within the group which includes his major subject. A candidate for the degree of Master of Arts or Doctor of Philosophy must select one minor subject outside of the group which includes his major subject. The choice of subjects must in every case be approved by the Dean. Requiring the examinations in Latin, French, and German, now prescribed for admission to candidacy for the doctor's degree under the Faculty of Philosophy, to be passed at least one academic year before the candidate presents himself for the degree. Adding Philosophy, Psychology, and Anthropology (Nos. 1, 2, and 14) to the list of subjects allowed to count each as the equivalent of a major and one minor subject. Striking out Logic in the list of subjects allowed to be offered as minors.

The regulations for University fellowships were amended by the omission from the sentence beginning: "The candidate must give evidence (*a*) of a liberal education, such as a diploma already granted, or about to

be received from a college or scientific school of good repute" of the words "already granted, or about to be received."

The footnote to section 2 of the regulations for the University degrees was amended to read: In practice three years of university residence, subsequent to the attainment of the bachelor's degree, or its equivalent, are usually necessary to obtain the degree of Doctor of Philosophy.

The following regulations for the award of the Richard Butler Scholarship were adopted:

The Richard Butler Scholarship, for the benefit of male students born in the State of Ohio, is open for competition to qualified candidates who purpose to enter Columbia College, or one of the non-professional Schools of Political Science, Philosophy, or Pure Science, or the professional Schools of Law, Medicine, Applied Science, or Architecture. Candidates for the College, or any one of the non-professional or professional Schools, must have the qualifications prescribed for entrance to the College, or such school. The scholarship is tenable for one academic year, with the possibility of renewal for each of two years more. The annual value of the scholarship is the amount of the annual tuition fee of the College or of the school in which it is awarded, provided that it shall not exceed the annual income of the sum of $5,000, given for the establishment of the scholarship. Applications for the scholarship should be made in writing, on blanks that will be furnished for the purpose, and addressed to the chairman of the committee on University scholarships. Applications must be filed not later than May 1 of the year in which the appointment is desired. The committee on University scholarships will recommend to the University Council, or to the appropriate faculty, the appointment of that candidate who, in the opinion of the committee, is best qualified to receive it.

The special committee, appointed by resolution of the Council, November 19, 1901, to consider the regulations for the award of the degree of Master of Laws, was continued and further enlarged by the addition of the President of the University as chairman.

April Meeting.—The following recommendations, adopted by the Council at a special meeting held March 5 by the vote subjoined, by resolution were ordered to be transmitted to the Faculty of the College together with the accompanying preamble:

Towards the close of the last academic year the following question was submitted to the University Council by the special committee of the College Faculty on the revision of the curriculum:

Might the degree of bachelor of arts be conferred upon the recommendation of the Faculty of Columbia College only for work done entirely under the direction and jurisdiction of that faculty, or should it be conferred upon the recommendation of the Faculty of Columbia College also for work done during one, two or more years under the direction of a professional faculty, upon the certificate of that professional faculty that the work has been satisfactorily completed?

This question suggests, if it does not directly raise, the whole subject of the combination of collegiate and professional studies for a first degree. Whether the degree of bachelor of arts or some other first degree shall be awarded on combined courses, and what shall be the range and mode of combination, are questions which directly or indirectly concern every faculty in the University. To these wider questions the Council has devoted special consideration. It now addresses the Faculty of the College rather than the committee on the revision of the curriculum, because its recommendations go beyond the limits of the question submitted by that committee, and because the statutes of the University impose upon it the

duty "to make such recommendations, both to the Trustees and to the several faculties, concerning the educational administration of the University as may seem to it proper."

The Council is of the opinion that, in the matter of combined courses, a substantially uniform policy should prevail throughout the University. It is further of the opinion that the existing system, which was introduced fourteen years ago by unanimous resolutions of the College Faculty and of the University Council, should not now be abandoned, in whole or in part, merely because defects have been discovered in its operation. An effort should be made to remedy these defects, and further trial should be given to the system thus reformed. The third of the subjoined recommendations outlines a plan of combination which, it is hoped, will be found free from the faults that have been noted in the combined courses as heretofore organized.

1. If the existing requirements for the first degree remain substantially unchanged, it is recommended that candidates for such degree be permitted to take a full years' work in the School of Law, or two full years' work in the School of Medicine, the Schools of Applied Science, the School of Architecture, Teachers College, or the School of Journalism, and to count such work towards the first degree.

For the adoption of this recommendation 12 members of the Council voted aye, 3 no.

2. If the requirements for the first degree be so modified that a student of average ability and industry may complete the course in three years, it is recommended that candidates who have obtained two-thirds of the required points, including all prescribed studies, be permitted to take a full year's work in any professional school of Columbia University, except the School of Law, and to count such work towards the first degree.

Adopted by a vote of 12 ayes, to 3 noes.

3. When courses offered by a professional faculty are permitted to count towards the first degree, the student who elects such courses solely as a part of his liberal education should be primarily registered in the College, and should remain subject to the jurisdiction of the College Faculty; but the student who intends to count such courses towards a professional degree should be primarily registered in the professional school and should be subjected to the jurisdiction of the professional faculty. To attain this end it is recommended that courses which are elective for the first degree shall not, as a rule, be counted towards a professional degree, unless the candidate be primarily registered in the professional school.

Adopted by a vote of 11 ayes, to 4 noes.

The following subjects for the degrees of Master of Arts and Doctor of Philosophy, as the result of the action of the Faculties of Applied Science and Pure Science of assigning all graduate work under these Faculties to the Faculty of Pure Science, were added to the list of such subjects under the Faculty of Pure Science in the Regulations for the University Degrees: Civil and Sanitary Engineering; Electrical Engineering; Mechanical Engineering; Metallurgy; Mining.

Special committees were appointed to report upon the mode of putting into operation the new arrangements with the College of Pharmacy for the next academic year; to report upon the whole question of extension work in the University; to report at the first meeting of the Council, in October, upon the organization and scope of the School of Fine Arts.

The following fellowships were awarded:

Le Roy Abrams, Stanford University, Cal., Botany; Enoch Marvin Banks, Grantville, Ga., Finance;

Alexander Otto Bechert, Brooklyn, N. Y., Germanic Languages; Charles Collins, Kirkwood, Mo., Romance Languages; Chris Andrew Hartnagel, Niagara Falls, N. Y., Geology; Vivian Allen Charles Henmon, Lindsborg, Kan., Psychology; Louis Joseph Mercier, Chicago, Ill., Romance Languages; Charles Edward Morrison, New York City, Civil Engineering; Max Morse, Columbus, Ohio, Zoology; Arthur Huntington Nason, Augusta, Me., English; Charles William Ramsdell, Austin, Tex., American History; Roemer Rex Renshaw, Eugene, Ore., Chemistry; Wallace Bates Shield, Kansas City, Mo., International Law; Philip Hyatt Tarr, Mt. Vernon, Ohio, Philosophy; Everett Lynn Thorndike, New York City, European History; Joseph Harding Underwood, Iowa City, Iowa, Sociology; Norman Richard Wilson, Winnipeg, Canada, Mathematics; Chin Yung Yen, Tientsin, China, Constitutional Law.

The following alternates were appointed: Under the Faculty of Political Science—Oliver Morton Dickerson, Champaign, Ill., American History; William Morris Houghton, Brunswick, Me., Economics; David Leslie Patterson, Jr., New York City, European History. Under the Faculty of Pure Science—Thomas Thornton Read, Laramie, Wyo., Mining; Jules Catherinet, New York City, Geology; George Wilber Hartwell, Albion, Mich., Mathematics.

Honorary fellowships were awarded to Allen Barber Eaton, Beloit, Wis., Sociology; Alain Campbell White, Litchfield, Conn., Comparative Literature.

The following endowed fellowships were awarded: Barnard Fellowship—William Campbell, New York City. George William Curtis Fellowship—Charles Grove Haines, Collegeville, Pa. Mosenthal Fellowship—Benjamin Lambord, New York City. Proudfit Fellowship in Letters—Stanley Kidder Wilson, New York City. Proudfit Fellowship in Medicine—Linsley Rudd Williams, New York City. Schiff Fellowship—Norris Arthur Brisco, Spokane, Wash. International Fellowship for Study in France—Stephen Herbert Langdon, New York City, Semitics.

The Teachers College Fellowships are given under the legislation of this Faculty (p. 376).

Faculty of Applied Science

The Faculty resolved to approve the plan of having the graduate or research work in applied science, now conducted under the supervision of that Faculty, transferred to the control of the Faculty of Pure Science, and that the Trustees be requested to approve the recommendation of the Faculty that the heads of the Departments of Civil, Mechanical, Electrical, Mining Engineering, and Metallurgy be given a seat in the Faculty of Pure Science.

The Faculty adopted the following rules for the award of the Illig Medal:

That three names be selected from the graduating class by the Faculty and submitted to that class, who from these three names shall select one to receive the prize. Should the class at any time fail to make a selection and give notice thereof to the President of the University at least ten days prior to the day appointed for Commencement, the selection of the student to receive the prize may be made by the Faculty.

To facilitate the choice of these three men, the Committee recommends that the Committee on Administration be authorized and instructed to procure from each member of the Faculty a nomination of the three men in the graduating class who in his

opinion are best qualified to receive the award of the Illig Medal on the basis of merit by commendable proficiency in the student's regular studies.

The Faculty nominated for reappointment Mr. W. Campbell as Barnard Fellow for the year 1904–5.

Faculty of Political Science

January Meeting.—The Faculty authorized certain changes in the history courses. Of these the more important were: A new course on mediæval institutions to be given by Dr. Shotwell; a course on the French Revolution to be given by Professor Robinson; new courses in recent European history, 1815 to 1848, and in contemporaneous European history from 1848 to the present time, to be given in alternate years by Professor Sloane; a new course on modern Russia, to be given by Dr. Simkhovitch; and new courses on the history of Spanish America, and on the development of the West since 1803, to be given by Dr. Shepherd.

March Meeting.—The following changes were authorized in the courses in economics: Economics 3 to be entitled Money and Banking and to be given every year; Economics 13 to be entitled Commerce and Commercial Policy; a new course, entitled Problems of Industrial Organization, to be given by Professor Seager; Sociology 17 and Sociology 19 to be given by Professor Moore, the latter course in alternate years.

The following change was authorized in the courses on Roman Law and Comparative Jurisprudence: Jurisprudence 23, Comparative Jurisprudence, to be described as a course on the modern civil law of Western Europe, and to consist of a comparison of the French, Italian, Spanish and German codes.

Teachers College

February Meeting.—The following leaves of absence were granted: To Professor Wood, of the Department of Physical Education, from January 1, 1904, to the close of the academic year; to Professor Woolman, of the Department of Domestic Art, from April 1, 1904, to the close of the academic year; to Professor Churchill, of the Department of Fine Arts, and to Professor McMurry, of the Department of Elementary Education, for the academic year 1904–1905; to Professor Dutton, of the Department of Educational Administration, from April 1, 1905, to the close of the academic year. At the same meeting, the Faculty approved the establishment of the following new courses: Biology 4—Plant Physiology—2 points; Domestic Art 18—Embroidery—1 point; Domestic Art and Science 19—Household Art and Economics—2 points; Geography 3—Geography of the United States—1 point, first half-year; Mathematics B—Economic Mathematics—3 points; Physical Education 15—Kinesiology—2 points; Education 50 G—2 points—a special section of the required senior course, Education 50—History and Principles of Education—intended for graduate students and counting, when taken in connection with Education 51 by candidates whose major is not in Education, as a minor for the degree of Master of Arts.

April Meeting.—The Faculty approved the recommendation to the University Council of the following Fellows in Education for the academic year 1904–1905:

Honorary Fellow—Ellwood P. Cubberley, A.B., Indiana University, 1901; A.M., Columbia, 1902; Associate Professor of Education, Leland Stanford Junior University.

Teaching Fellows—Benjamin Richard Andrews, A.B., Cornell University, 1901; A.M., 1903; Teachers College, honor assistant, 1903–1904; Educational Museum. Edward Charles Elliott, B.S., University of Nebraska, 1895; A.M., 1897; Teachers College, honor assistant, 1903–1904; Educational Administration. Fletcher Harper Swift, A.B., Dartmouth College, 1898; B.D., Union Theological Seminary, 1903; Teachers College, graduate scholar, 1903–1904; History and Principles of Education.

Fellows in Education—Jesse Harliaman Coursault, A.B., Ohio State University, 1893; A.M., 1898; A.M., Harvard University, 1900; Teachers College, graduate scholar, 1903–1904. Walter Fenno Dearborn, A.B., Wesleyan University, 1896; A.M., 1903; Teachers College, graduate scholar, 1903–1904. George Drayton Strayer, A.B., Johns Hopkins University, 1903; Teachers College, Earl Scholar, 1903–1904.

It was decided that the fellowship in Manual Training be not awarded, but be divided into scholarships, to be awarded in the usual manner.

STUDENT LIFE

An unusually eventful and successful season for almost every branch of student activity was brought to a close with the past quarter of the academic year.

The annual **Columbia-Cornell Debate**, held at Ithaca on March 25, resulted in a victory for the team of the latter university. The question was "Resolved, that the efforts of employers to overthrow the union shop in the trades now wholly or partly unionized are promotive of the interests of the laboring classes." Columbia upheld the affirmative side of the question and was represented by O. R. Houston, A. G. Hays, and A. L. Strasser, with H. Harper as alternate. Dean Crane of Cornell presided. The decision was rendered by a committee of three judges composed of Watson M. Rogers, Justice of the Supreme Court, Watertown; Nathan L. Miller, Justice of the Supreme Court, Cortland; and Charles B. Smith, editor of the Buffalo Courier.

On the day following the debate, delegates from Columbia, Cornell, and Pennsylvania met at Ithaca and signed an agreement for a triangular debating league. Under the agreement each university is to put two teams into the field, one on the affirmative and one on the negative side of the same question. The three debates are to be held on the same evening and are to take place at New York, Philadelphia, and Ithaca. As yet no definite date has been arranged for next year's contests.

As the leading and representative society among undergraduates of the College, **Kings Crown** continued its policy of last year with marked success. The Crown listened to several professors of the University, prominent writers and alumni. Among its speakers were F. Hopkinson Smith, Victor Mapes, and John Kendrick Bangs, and Professors F. H. Giddings, H. Lord, and J. V. W. Jackson.—The Varsity Show, finally named "Isle of Illusia," has proved a financial as well as a social success. The out-of-town performance of the Show was given at Montclair on April 11 and was very well received. The profits for the Show's entire run amounted to about $600. At a meeting of the Crown on April 13 this surplus was disposed of by voting half to the crew and loaning the remainder

to the Columbia Student's Publishing Company. At the same meeting managers of next year's Show were elected, the election resulting in the choice of R. C. Lewis and W. J. Brennan as manager and assistant manager respectively.

As yet no definite plan has been adopted by the Crown with reference to awarding students who distinguish themselves in branches of activity other than athletics. It has been unable to solve the problems that have presented themselves because no adequate plan has as yet been suggested for its action. The **Non-Athletic-Insignia Committee** to whom the major share of the solution of these problems was entrusted has been experiencing considerable difficulty in its work. Various plans proposed by it to the society have been rejected as being too restrictive.

The **Deutscher Verein** passed through another year of prosperity, increased its membership list from one hundred and forty to one hundred and ninety active members, and established a long waiting list. The society was very fortunate in the number and high character of addresses delivered during the year, among the speakers being: Wilhelm Müller, Professor L. Heinrich Friedburg, Dr. George Kriehn, Günther Thomas, Professor F. Hirth, Dr. Louis Viereck, Professor J. H. Robinson, and Professor Lehmann of Berlin. Its meetings, without exception, were very well attended and furnished eloquent proof of the good fellowship that can exist in an organization bringing students and officers together.

At its first meeting in December the society celebrated the fifth anniversary of its foundation. Appropriate speeches were made by the Verein's President, Professor W. H. Carpenter, Dr. A. F. J. Remy, Dr. R. Tombo, Sr., and Charles Adkins Baker, 1902. Another occasion for an exceptional gathering was the meeting on March 14, when the Verein entertained the Chemical Society. Speeches were delivered *ad libitum*, and songs, in German and English, were generously interspersed.

On April 15 the Verein held the most successful *Kommers* since its foundation. The entertainment was given in the Officers' Dining Room of University Hall and was held in honor of the Imperial German Ambassador, Baron Speck von Sternburg. The room was handsomely decorated with American and German flags, the upper portion of the walls being hung with Columbia bunting.

Professor William H. Carpenter, the President of the Verein, opened the *Kommers* with a speech of greeting to the German Ambassador. Baron Speck von Sternburg responded with a speech expressing his satisfaction and appreciation of the invitation extended to him by the Verein and commended the University for its efforts to promote German culture and sociability at the same time.

President Butler, who also accepted the invitation of the Verein to be present, then spoke and welcomed Baron von Sternburg on the part of the University. After each of these three speeches the students rubbed a "salamander" in honor of the speaker, while German student songs were sung in the intervals between the addresses. Professor Rudolf Tombo, Jr., next welcomed the Baron for the faculty of the University and G. A. Younger, 1905, spoke as the representative of the students. Several of the prominent guests present also addressed the society. Of these only a limited number, representing the various spheres of German influence in national and municipal life, had been

invited. Professor J. W. Burgess, Professor Munroe Smith and Professor F. Boas, were present as Columbia professors who had graduated from German universities. The honorary members of the society who were present were Heinrich Conried, Louis Viereck, George von Skal and Rudolph Keppler. Carl Schurz and Consul Carl Bünz both sent letters of regret on account of their inability to be present, and these were read. Eugen Zabel, editor of the *National Zeitung*, and Professor Lehmann of Berlin, were the only other guests. Dr. A. F. J. Remy officiated as "praeses." An elaborate 16-page program was prepared, bearing colored covers on which crossed American and German flags were embossed. Without doubt this was the most brilliant entertainment given by any student organization during the year.

The **Société Française** presented two very successful plays on the afternoon and evening of April 14 and on the evening of April 15 in Brinckerhoff Theater of Barnard College. The society performed a one-act farce called "Les suites d'un premier lit" and a three-act comedy, entitled "Les vivacités du Capitaine Tic." The cast of the one-act play was as follows:

Trebunhard.....R. C. Hoguet 1905 L.
Prudenvol.....V. de Beaumont Ph.
Pigueoiseau.....J. Marsching Pol. S.
Blanche.....O. R. Houston 1904
Claire.....Miss Spencer

The cast of "Le Capitaine Tic" included

Le Capitaine Tic..R. C. Hoguet 1905 L.
Desambois.....F. Lage 1907 S.
Celestin Magis...V. de Beaumont Ph.
Bernard.....J. Marsching Pol. S.
Baptiste.....C. Collins Ph.
Mme. de Guy-Robert..Miss C. Spencer
Lucille.....Miss D. Canfield Ph.
Invités.....E. Kehrlein 1907, W. A. Tice 1904, B. Spencer 1907.

The presentation of these plays marked the climax of a year of unusual activity for the society. Its meetings were always well attended and without exception offered abundant opportunities to work out the purpose of the organization.

During the present academic year the **Literary Society** held a number of meetings at which several interesting prose and verse contributions were read and criticised.

Pen and Pipe still lives up to its motto, "for good fellowship and Columbia letters." Several new members have been elected during the year. The annual dinner will be held after the final examinations. The president of the club is D. C. Brace, 1904.

A number of students interested in the promotion of the study of the Swedish language and literature met on December 4 and organized the **Swedish Society** of Columbia University. The society purposes to assist the University in its general educational efforts in the Scandinavian field. The prospects for a successful organization are very good, as the number of students and teachers interested in Swedish is constantly increasing. The following were the society's officers for the year: President, A. Aaron; vice-president, C. P. Carlson; recording secretary, T. Lindquist; corresponding secretary, J. T. W. Malmberry; treasurer, Mrs. A. Aaron; extension committee, J. A. Swenson; program committee, V. A. C. Henmon and C. P. Carlson.

The **Japanese Club**, organized in the fall of 1901, has passed through another successful season. The society was formed to bring together socially the Japanese students of the University. The club's active membership list includes some fifteen students. Meetings are held on the first Saturday of each month; papers are read

on topics of general interest; and a dinner is served at stated intervals. The officers of the club are: President, G. Aburatani; general secretary, M. Takata.

Several of the older graduates of the Horace Mann School reorganized the **Horace Mann Club** late in the year with the avowed purpose of encouraging students in the preparatory school to enter Columbia. The officers are: President, F. L. O'Connell; vice-president, T. H. Burch; secretary, G. A. Younger; treasurer, A. W. Hahn. Smokers and inter-club games have been arranged.

Both the **Franklin and Marshall** and **Rocky Mountain Clubs** have been active during the year and have held one or two interesting meetings.

The **Beaux Arts Club** has had several pleasant gatherings during the year. The president of the organization is Roscoe C. Gaige, 1903.

With the continual growth and expansion of the University, undergraduate life has broadened not only in the College proper, but also in the **Schools of Applied Science.** The year has witnessed unusual activity on the part of several organizations in these schools, notably the Chemical Society, the Electrical Engineering Society, and the Engineering Society.

The **Chemical Society** began its work on October 15, when it listened to a lecture by Dr. Harvey W. Wiley on "Adulterated food-products." Its meeting was attended by nearly two hundred guests besides the members of the organization. Dr. Hans Goldschmidt of Essen, Germany, next lectured to the society on "Alumino-Thermics," on November 13, before a gathering of almost 300 guests from the chemical and engineering societies of the city. On three other occasions dinners at the Harlem Casino were combined with a lecture by prominent chemists of the country.—The society was handsomely entertained by the *Deutscher Verein* on March 14.—On April 14 some twenty members of the society went to Philadelphia, as the guests of the Ewing Chemical Society of the University of Pennsylvania. They were met at the station by a delegation of their hosts, and at once taken to the Harrison Laboratories of the University of Pennsylvania, where they were cordially welcomed at a smoker given in their honor. On the day following they were escorted over the University buildings and grounds, and were very hospitably entertained in the University dormitories and also at the homes of some of the professors during their stay in Philadelphia. They returned on Sunday, April 16, after an extremely pleasant visit.

The society closed the year with a Kneipe, which was held in University Hall, on the evening of May 13. On this occasion Dr. M. C. Whitaker lectured on "Modern improvements in artificial illumination." The meeting brought together a large and pleasant gathering of the members, present and past, and the many friends of the club. Like the preceding affairs of the society this was also a great success. The society's officers were: President, G. H. Picard; vice-president, J. R. Goodell; secretary, H. M. Cox; treasurer, A. W. Hahn. Professors C. F. Chandler and C. E. Pellew are respectively honorary president and honorary vice-president of the society.

Officers and students of the Department of **Electrical Engineering** formed themselves into a society during the early part of the second term, for the purpose of promoting interest in this branch of scientific work and with the intention of bringing together its members in a social way. Two meetings are held each month, at which an address is usually delivered by

some prominent engineer and papers are read on topics of current professional interest. The **Electrical Engineering Society** has had a successful start and will no doubt have a prosperous future. The officers are: President, E. T. Haines; secretary, N. B. Curtis; treasurer, L. F. Kohler.

Of the three musical clubs, the **Philharmonic Society** has perhaps been the most fortunate. While both the Mandolin and Glee Clubs have not been unsuccessful, the Philharmonic Society has had the distinction of giving several exceptionally well received concerts.

The Philharmonic Orchestra was started in 1896 by a number of students interested in music of a slightly higher grade than that usually played by college men. Mr. Herman H. Wetzler was engaged as conductor, a position which he occupied for two years. The society next obtained the services of Mr. Gustav Hinrichs and it is to him that much of the success of the organization is due. Soon after this the Music Department had the rehearsals of the orchestra made into a course, and at present these count as laboratory work towards the degree. All outside performances and social activities are managed by the student organization.

The first appearance of the past year was at Yonkers, at the Amackassin Club, the affair being for charity. On December 3 a concert was given at the Horace Mann Auditorium, on which occasion the program included Schubert's "Marche Militaire," Mendelssohn's "Trompeten Overture," Rubinstein's "Kamenoi-Ostrow," the Aragonaise from Massenet's "Le Cid," and the overture from Auber's "Domino Noir."

On March 3 the most successful concert in the history of the society was given at Mendelssohn Hall. The orchestra was assisted on that occasion by a number of alumni members. Every seat in the house was occupied. The program was as follows:

1. Overture, "Iphigenie in Aulis," ..... *Gluck*
2. Introduction and Allegro...*Godard*
   (Piano and Orchestra)
   MISS HELEN CORBIN
3. Air from "Romeo and Juliet," ..... *Gounod*
   MISS LUCY LEE CALL
   (By special permission of Mr. Heinrich Conried)
4. Symphonie militaire..... *Haydn*
   Adagio and Allegro—Allegretto
   —Menuetto moderato—
   Finale, Presto

INTERMISSION

5. Intermezzo from "Naïla"..*Delibes*
6. *a.* To a Wild Rose } ....*MacDowell*
   b. To a Water-lily }
   c. Elfenspiel .....*Heymann*
   MISS HELEN CORBIN
7. *a.* Serenade .....*Gounod*
   b. I Love and the World is Mine, ...*Clayton Johns*
   MISS LUCY LEE CALL
8. March from "Tannhäuser," ..... *Wagner*

The society appeared several more times in public and furnished the music for the Sophomore, Varsity, and French Shows.

The **Glee and Mandolin Clubs** suffered from a set-back in the middle of the year, but succeeded in coming out very well by the end of the season. The societies' concerts were always a social success, but for some reason or other the managements failed in the beginning to secure enough student cooperation to carry them through without a reverse. Before the close of the year the societies, however, had paid many of their debts and a surplus of over $200 was on hand.

The season began on November 13 with a joint concert at Ithaca, where for three days the societies were the guests of the musical society of Cor-

nell. On December 4 a concert with the N. Y. U. clubs was held at Earl Hall, followed by a dance at the Gymnasium. Five concerts were held after this at the Hartley House, at the Columbia Club, at Plainfield, at Flushing and at Yonkers.

Both leader and manager were forced to resign from their active duties due to illness and lack of time, and H. W. Albert, 1905, and R. Wyld, 1904, were elected to fill the respective vacancies.

On May 10 the societies' annual dance and concert were held at the Waldorf-Astoria and were the crowning success of the season.

Spectator has been continued in its conservative policy for another successful term. Upon the resignation of its former editor-in-chief, D. C. Brace, Alfred Harcourt was elected his successor and the place made vacant on the managing-board by his promotion assigned to W. F. J. Piel. During the quarter the paper has been aggressive in the interests of the students and has been characterized by continued newsy columns. The agitation for an honor system and for the adoption of compulsory chapel was part of its work during the last half of the year. The printing plant, installed in the beginning of the year, has fully justified its expense to the paper. With the start given the paper, editorially and financially, there should be no question as to a successful future.

The **Monthly** has been fairly prosperous. It has succeeded in procuring the combined subscribers of the publications it replaced, but yet lacks much toward having a representative circulation. This is by no means the fault of the publication, but tends to show the drift of student life in another direction. Without doubt the magazine represents an exceptionally worthy effort. To judge from opinions expressed in the exchange columns of the different university literary publications, it may be safely said that it is acknowledged the best student production of its kind in the country. The quality of its issues has certainly been proof of this claim. It is to be hoped that its financial condition may be such as to permit a continuation of the magazine along similar lines.

In spite of rumors hinting at the probability of the discontinuance of **Jester**, the comic paper has again made its appearance.

For the first time since the abandonment of the semi-annual competition, prizes for public speaking, open to contestants from Columbia College, were awarded on March 23 in the form of the **Curtis Medals**. H. A. Butler, 1904, won the gold medal and W. J. Donovan, 1905, the silver medal; the winner of the first prize took for his subject "The essence of the Monroe Doctrine," the winner of the second "The awakening of Japan." Altogether six students of the Senior and Junior classes spoke for the prizes. All of the speeches were excellent. The judges were Professor H. G. Lord, Henry Holt, and John B. Pine, '79. Dean Van Amringe presided at the competition.

Interest in **inter-class** affairs centered in the **Senior Class**. A movement toward establishing an honor system at examinations as it is in vogue at other universities was first submitted to the Senior Class, but voted down. This ended further agitation for the system.

On March 23 the President of the Senior Class of the College appointed the following committees: Senior Class Book Board—J. L. Robinson, L. B. Gillett, J. Knox, J. R. Fisher, G. A. Ellis, D. C. Brace, F. L. O'Connell and W. A. Tice. Class Day Com-

mittee—E. Stauffen, chairman; J. S. Maeder, W. P. S. Earle, E. B. Lyford, E. H. Updike, H. Van Greene and A. E. Thurber.

The **Senior Science Dance** took place in the Gym on April 29. The dance was almost as elaborate as the Junior Ball in its various features, and was a complete social success. The members of the committee to whom the arrangements of the dance were entrusted were: R. S. Stangland, chairman; G. W. Demarest, business manager; R. A. W. Carleton, M. H. Fies, L. B. Alexander, G. A. Miles, J. Hawkesworth, W. P. Abendroth, E. Van Wagenen.

In accordance with the custom established by the two preceding classes, the Sophomore Class elected the members of its **Columbian Board** early in April. The character of the present Junior year-books necessitates much work and time, so that an election thus early seems commendable. The members of the board are: R. W. Macbeth, C. A. Stewart, F. D. Fackenthal, W. B. Devoe, E. Scott, and T. McCarthy, representing the College; and H. Baxter, J. H. Merritt, C. L. Campbell, R. J. S. Pigott, W. M. Sage and R. W. Toll, representing the Schools of Applied Science. The election of the officers of the publication, held on April 14, resulted as follows: W. B. Devoe, editor-in-chief; R. W. Macbeth, assistant editor; F. D. Fackenthal, secretary; H. Baxter, business manager; W. M. Sage, assistant business manager; R. S. Pigott and H. K. Temple, art editors.

W. F. J. Piel.

ATHLETICS

Indoor sports have passed through a successful season and have added at least one championship to the University's record. An accident at the intercollegiate gymnasium championships lost the meet to Columbia; however, there is hope that the protest now resting with the executive committee of the Association against the hasty action taken in disqualifying two Columbia contestants, which lost the meet to the Varsity, will result in a reversal of decision and thus add one more championship to the University's record for 1903–4.

Columbia finished the fourth season of Varsity **Basketball** by winning the intercollegiate championship and defeating every college team played. The record established by the five has never been excelled by any basketball team representing any university in the country. Eighteen games in all were played, of which seventeen resulted in victories and but one in defeat. This one defeat can hardly be accredited to the Varsity team, however, as at the time of the game neither Fisher nor Allen was playing, and a substitute team had to go in against one of the strongest professional teams in the country. After this game, the nearest the team came to defeat was in the first game with Pennsylvania on the home court, when Columbia just succeeded in winning out in the last minute of play by one goal. All the other games were won by comparatively large margins. The team started training the day after Election Day under the supervision of H. H. Elias, 1903, captain of last year's team, with a squad of over thirty men. Throughout the season the team was greatly assisted by the strong scrub team, which was very faithful in reporting for practice. Much credit is due to the untiring efforts of H. H. Elias, the graduate coach, and to T. G. Cook in turning out a winning team.

The team loses three of its regular

players by graduation in June—O'Connell, Fisher and Rogers, but the rest of the team will be back and eligible to play.

The Varsity squad at the end of the season was composed of F. L. O'Connell, 1904, center and captain; H. A. Fisher, 1904, manager and right forward; A. Rogers, 1904, left forward; B. R. Von Sholly, 1904, left guard; M. L. Hurley, 1906, right guard; T. H. Allen, 1907, forward; C. R. Trubenbach, 1905, guard; and C. W. Cuthel, 1905, assistant manager.

Following is the schedule of games played:

	Col.	Opp.
Dec. 12—Pratt Institute	42	12
Dec. 16—W. S. Br. Y. M. C. A.	29	16
Dec. 18—Williams	16	9
Dec. 24—Washington Continentals	12	17
Jan. 9—Second Signal Corps	25	10
Jan. 11—Co. F of Norwalk.	17	6
Jan. 15—Harvard	39	14
Jan. 18—Cornell	31	18
Jan. 19—Rochester	27	13
Jan. 22—Wesleyan	40	12
Feb. 5—Pennsylvania	17	15
Feb. 8—Yale	21	7
Feb. 12—Harvard	24	16
Feb. 19—Yale	21	5
Feb. 27—Princeton	23	18
March 1—Pennsylvania	23	12
March 4—Princeton	27	15
March 11—Cornell	49	13

Points: Columbia 483, Opponents, 228.

Games Won, 17; Lost 1.

Elections for the captain and manager of next year's team, held on March 25, resulted in the choice of B. R. Von Sholly for captain and C. W. Cuthel for manager. E. Hess, 1906 S., was elected assistant manager.

The **Gym Team** continued its work of the past two years. With the exception of the intercollegiates, which Columbia lost through an accident, her record is a clean one. The action taken by the league authorities in disqualifying two Columbia men who had won a first and second, sufficient to give the Varsity the victory by a comfortable margin, has been referred to above.

The following exhibitions were given during the year: Dec. 21 at Clark Neighborhood House; Jan. 16 at Central Branch Y. M. C. A., Brooklyn; Jan. 30 at Pratt Institute; Feb. 4 at Trinity; Feb. 19 at U. of P., Philadelphia; Feb. 25 at Gordon House; Mar. 2 at De Witt Clinton High School; Mar. 11 at Harvard; Mar. 12 at Amherst.

The result of the first contest with Yale was 29–25 in favor of Columbia. The triple meet with Yale and Pennsylvania resulted in a victory for Columbia, the respective scores being 22, 5, and 27 for Columbia. At present the results of the intercollegiate meet stand as follows:

Yale	18
Columbia	12
N. Y. U.	8
Princeton	6
U. of P.	5
Rutgers	5

Both the Varsity and Freshman **Fencing Teams** are to be commended on the excellence of their work during the year. The Freshman fencing team, while not having the hard task of the Varsity still had many difficult bouts to win, and is therefore deserving of much praise, having gone through the year without a defeat. With the exception of one dual meet the Varsity won all its contests and tied Cornell for second place in the intercollegiate meet, West Point, as might be expected, winning first. While fencing does not rank very high as a popular sport in the estimation of the students, nevertheless it is gaining more friends every year. The work done by the Freshmen is very promising and another year should greatly improve the

chance of the intercollegiate fencing championship coming to Columbia.

The students were very much disappointed in the showing made by the **Water Polo Team** this year in its contest with Yale for the intercollegiate championship. After holding the title so long, it was thought that Columbia would certainly win the championship again. There was some ground for this faith in the six, inasmuch as in its previous games with other polo teams the Varsity had repeatedly carried off the victory.

An attempt to revive intercollegiate **Handball** was made during the quarter and a challenge was sent to Yale requesting a match. Inasmuch as the idea was first started at New Haven, it was expected that the challenge would immediately be accepted. As yet nothing definite has been done.

Thirteen games were played by the Varsity **Hockey Team** this year, many of them with the strongest teams in the country, and considering the disadvantages of practice, the team made a very creditable showing. In the intercollegiate series the seven won two games and lost two. A tie game was played with the strong New York Athletic Club team. The Varsity scored 33 goals to her opponents 32. The following is the record of the games played:

	Opp.	Col.
H. C. N. Y.	6	4
C. C. N. Y.	0	8
Crescent A. C.	6	0
Naval Reserves	2	4
N. Y. A. C.	1	1
P. P. C.	2	3
Yale	5	3
Wanderers H. C.	3	0
Harvard	2	0
Brown	0	3
Cornell	0	2
Princeton	1	3
Wanderers H. C.	4	2

Columbia finished third in the intercollegiate series, the final standing of the teams being as follows:

	Won	Lost	P. C
Harvard	4	0	1000
Yale	3	1	750
Columbia	2	2	500
Princeton	1	3	250
Brown	0	4	000

The prospects for next year's team are bright, as the following men will remain in the university: Cook, Callaghan, Jackson, Brady, and Bode.

The **schedule of the Varsity Football Team for the season of 1904** was announced by the management on April 9. In all eleven games are to be played, but the one with Stevens is arranged for the second team, and no men playing in the Yale and Pennsylvania games are eligible for the Stevens game. This year the games with the Alumni and Hamilton have been dropped out, and Franklin and Marshall College and Tufts have been substituted. The remaining games are against colleges which were played last year. The game with Union starts the season on September 24 and Cornell ends the season on November 12. In accordance with the precedent set last year the season is to be a short one, and ends in the second week in November. Only one out of town game is to be played, against Pennsylvania at Franklin Field on October 22. Both the Yale and Cornell games are played at New York. The complete schedule of the games is as follows: Saturday, Sept. 24—Union at New York; Wednesday, Sept. 28—Franklin and Marshall at New York; Saturday, Oct. 1—Wesleyan at New York; Wednesday, Oct. 5—Tufts at New York; Saturday, Oct. 8—Williams at New York; Wednesday, Oct. 12—Swarthmore at New York; Saturday, Oct. 15—Amherst at New York; Saturday, Oct. 22—Pennsylvania at Franklin Field, Philadelphia; Saturday, Oct. 29—Yale at New York; Saturday, Nov. 5—Stevens at New York; Saturday, Nov. 12—Cornell at New York.

Spring football practice began on May 2. The prospects for a good Varsity eleven are excellent.

The prospects for winning Poughkeepsie **Crews** are altogether favorable. Rowing was begun under auspicious circumstances on the first of December, more than 130 men reporting for the work. The management has been very fortunate in securing the help of a new coach, Jasper T. Goodwin, '76, stroke and captain of the only American collegiate crew that ever brought back the Visitor's Cup from Henley. The stroke that the men are rowing this year has been slightly changed and is now more like the stroke used by Cornell. The work of the candidates while indoors consisted of the routine practice, twenty minutes on the machines and a long run following.

When the crews were first boated on the Harlem, the captain, J. F. Maeder, 1904, and coach had reduced the squad to 48 men, from whom the crews are to be chosen. The work on the water is also somewhat different from previous years, in that brushes between crews have been made a feature of the training. This has been done in order to accustom the men to the trials of actual racing. At present three Varsity and two Freshman boats are practising daily on the Harlem.

The schedule of races is little different from last year with the one exception that a Junior Varsity eight will be entered in the University of Pennsylvania Henley regatta. The schedule is as follows: May 14—Columbia Freshmen vs. Yale Freshmen at Lake Whitney; May 30—One Freshman and two Varsity Crews in Harlem Regatta; May 30—Junior Varsity Crew in U. of P. Henley Regatta; June 27—Intercollegiate races at Poughkeepsie.

As in the past the Rowing Club has contributed toward the success of the training of the men and by its legislation has done much to improve the financial standing of the organization.

Rowing interests at Columbia have received a considerable impetus and the management has been relieved of a great portion of the usual financial worries by a gift of $10,000, the income of which sum is intended to partially defray the heavy expenses incidental to placing and keeping crews on the water. The donor is Edwin Gould.

Two relay races were won against Cornell and Pennsylvania in the one and four-mile relays respectively during the indoor **Track** season. In two of three other relay races against Yale, Columbia coming second, the world's record was broken, the Varsity team each time equaling the former record. Many firsts were won in open events in the different indoor meets held during the winter.

The indoor intercollegiates held in Madison Square Garden proved an absolute success and it is now hoped to make this an annual event. From a financial standpoint the meet was also a success and the University management is to be congratulated for its efforts in bringing about indoor intercollegiate athletics.

When the outdoor season opened some seventy men reported for work and about this number has been practising daily. In the spring University championships C. D. Macdonald, 1906, broke the University two-mile record in the good time of 10 minutes 27 2–5 seconds.

The Varsity schedule includes meets with N. Y. U., April 30; Pennsylvania, May 7; Princeton, May 14; Intercollegiates, May 27 and 28. The first meet of the outdoor season resulted in a victory for Columbia by the following score: Columbia 81⅔, N. Y. U. 34⅓.

Manager E. J. Reid, 1904 S., of the Varsity **Lacrosse Team,** has announced the following schedule for the team: April 2—Johns Hopkins, at Baltimore; April 9—Greater N. Y. I. A. A., at South Field; April 16—Stevens, at Hoboken; April 20—Swarthmore, at South Field; April 23—Crescent A. C., at Bay Ridge; April 30—Cornell, at Ithaca; May 2—Hobart, at Geneva; May 13—Harvard, at South Field; May 16—Pennsylvania, at Philadelphia; May 30—Greater N. Y. I. A. A., at South Field. It is hoped that games may be arranged with several of the Canadian college teams which are coming to New York to play the Crescent A. C. At the time the QUARTERLY went to press the results of games played stood as follows: Columbia 1, Johns Hopkins 7; Columbia 1, Greater N. Y. I. A. A. 5; Columbia 0, Stevens 2; Columbia 0, Swarthmore 3; Columbia 2, Crescent A. C. 11; Columbia 1, Cornell 8.

Announcement of plans for an active **Tennis** season was made late in March and includes the following schedule: May 7—New York University; May 12—Williams; May 14—Yale; May 21—Princeton. A meet with Harvard on May 13 will probably be arranged.

The election of the Tennis Club's officers resulted as follows: Captain, R. Le Roy, 1905; manager, K. Bulkley, 1906.

The plans for the **Golf Club,** as announced by its manager, S. Slosson, 1905, offer abundant opportunity for new men. The schedule is a fairly long one and should be an excellent preparation for the intercollegiates. Following is the schedule as at present arranged: April 16—Westchester Golf Club; April 30—Englewood Golf Club; May 7—Richmond Hill Golf Club; May 14—Richmond County Club; May 21—Nassau Golf Club. Matches will probably be arranged also with the St. Andrews and the Baltusrol Golf Clubs. The first two matches resulted in victories for Columbia.

The prospects for a successful season for the Varsity **Baseball Team** are good, although the team at the beginning of its work was somewhat handicapped by the presence of too much new material. Three first-year men are playing on the team. The Varsity's schedule for the season is as follows: March 30—Pratt Institute at South Field; April 6—New York University at South Field; April 8—Trinity at South Field; April 12—Yale at Polo Grounds; April 13—National League at Polo Grounds; April 16—Seton Hall at South Orange; April 20—Wesleyan at Middletown; April 23—Manhattan at American League Park; April 27—University of Pennsylvania at Philadelphia; April 30—Rutgers at New Brunswick; May 4—Open; May 6—Syracuse at Syracuse; May 7—Cornell at Ithaca; May 11—Fordham at Fordham; May 13—Syracuse at New York; May 18—University of Pennsylvania at Polo Grounds; May 21—C. C. N. Y. at American League Park; May 28—West Point at West Point; May 30—Amherst at New York.

In its games thus far the team has shown up fairly well. The defeat by Yale on April 12 was mainly due to the fact that the team was really untried and that the game came too early in the season.

	Col.	Opp.
Pratt Institute	14	3
N. Y. University	18	1
Trinity	11	2
Yale	0	1
Seton Hall	15	5
Wesleyan	4	3
Manhattan	4	4
Rutgers	6	1

W. F. J. PIEL

THE ALUMNI

The **Alumni of the Middle West** have been unusually active during the winter, enthusiastic meetings having been held in **Denver, Omaha, St. Louis** and **Chicago,** and the initial steps having been taken for the organization of alumni associations in **Kansas City** and **Milwaukee.** Dean Kirchwey of the School of Law represented the University at all of these meetings and addressed the several bodies of alumni on the development of the University.

The meeting of the *Colorado Alumni Association* was held at the University Club in Denver on the evening of Monday, December 28, President William V. Hodges (L. '99) presiding. There were forty members present from all parts of Colorado, some coming from points as remote as Pueblo and Trinidad, and the utmost enthusiasm prevailed. In addition to Dean Kirchwey's address, speeches were made by ex-Governor Thomas of Colorado, Dean Lucius W. Hoyt (L. '89) of the Denver Law School, Hon. Platt Rogers (L. 71), Thomas B. Stearns (S. '81), Judge Charles E. Southard (L. '01), Judge William L. Dayton (L. '89), Hon. Joseph S. Jaffa (L. '93), Professor Frank W. Traphagan (M. '82) of the Colorado School of Mines at Boulder, Professor W. H. Nichols (U. '01), recently professor of history at the University of Colorado, and others, and songs written for the occasion were sung with great effect by "Tom" Stearns and Carle Whitehead (L. '99).

The officers elected for the ensuing year were: President, W. A. Jayne (M. '75); vice-president, E. N. Van Courtlandt (S. '85); secretary and treasurer, James D. Benedict (L. '99).

The *Alumni of Nebraska,* few in numbers but full of devotion to their *alma mater,* met informally at dinner at the Omaha Club on Wednesday evening, December 30, under the auspices of Victor S. Rosewater (U. '92, '93), and listened with interest to the tale of the magical growth of the University. Among the distinguished guests present were General Charles F. Manderson, former president of the American Bar Association, and Judge Roscoe Pound, of Lincoln, Dean of the Law School of the University of Nebraska.

The annual meeting and dinner of the *Alumni Association of St. Louis* was held at the University Club in that city on Saturday, January 2. The following brief account of the occasion is taken from the report of the *St. Louis Globe-Democrat* on the morning following the meeting:

> There were twenty guests at the dinner last night. Besides Professor Kirchwey, the guests of honor were Judge Elmer B. Adams of the United States Court and Dean W. S. Curtis of Washington University Law Department, both of whom spoke, as did Rev. Dr. Leon Harrison. The toastmaster was Julius S. Walsh, president of the association. Others present were Doctors H. N. Lyon, George E. Lyon, John O'F. Delaney, Robert Barclay, H. N. Spencer, H. W. Loeb, Messrs. Philip N. Moore, W. H. Trigg, J. W. Graves, F. W. Gladney, L. D. Turner, W. T. Trueblood, Guy C. Mariner and Dr. G. M. Tuttle.
>
> The dinner was a purely informal affair, without program or set speeches. Professor Kirchwey led the speechmaking. His talk was on university ideals and standards, and described Columbia as the highest type and most representative among American universities.

The *Chicago Alumni* gathered to do honor to the University at the Univer-

sity Club in the city of Chicago on Monday evening, January 4. Hon. J. M. Dickinson, recently counsel for the Dickinson, recently counsel for the government of the United States in the Alaska Boundary controversy with Great Britain, presided as toastmaster, and speeches were made by Dean Kirchwey, Mr. Ryerson, Dr. Marcus Simpson ('91) of Northwestern University, Dr. Lewis G. Nolte (M. '86) of Milwaukee, Victor Elting ('91), and others. Owing to the recent Iroquois Theater disaster and other local causes, the attendance at the dinner was small, about twenty alumni being present in addition to the invited guests, but there was no lack of enthusiasm and the meeting was unanimously voted a great success. Officers were elected as follows: President, John A. Ryerson, '85; vice-president, Victor M. Elting, '91; secretary and treasurer, George S. Rice, '87.

District of Columbia

The following account of the Washington banquet appeared in the *Evening Star* of February 1:

The second annual dinner of the *Alumni Association of Columbia University of New York in the District of Columbia* was held on January 31 in the banquet hall of the New Willard. Since the last annual dinner the association has held a number of enthusiastic smokers and is at present taking great interest in the proposed university club.

The following officers were re-elected: President, John Cropper, '70; vice-presidents, William Dudley Foulke, '69; F. A. Leupp, '72; Dr. L. W. Glazebrook, '90, and Herbert Michael Wilson, '81; secretary, George O. Totten, Jr., '91; treasurer, Dr. Marcus Benjamin, '78.

Regrets were received from Bishop Satterlee, who was confined to his house with the grip. William D. Foulke, in the absence of President Cropper, acted as toastmaster for the evening. The invited guests present were Dr. Nicholas Murray Butler, president of Columbia University; Dr. Gilman of Johns Hopkins, Gen. Black and Mr. Chapman.

Mr. Foulke prefaced his introduction of each speaker with interesting and witty remarks. He contrasted Columbia College as it was during his day in its humble quarters on Forty-ninth Street with the magnificent university of today at Morningside Heights. His humorous reminiscences of college days were full of recitals of quaint pranks and of anecdotes which appealed to the hearts of college men.

Dr. Nicholas Murray Butler, president of Columbia University, who is President Roosevelt's guest while in this city, was the guest of honor. He responded to the toast for Columbia, reviewing the course of college education in this country, where, he said, it is no longer a debated question in every household whether or not the son shall go to college, but which college he shall attend. He referred to the fact that colleges were formerly principally places of preparation for those who intended to take up the profession of teaching, whereas now they have a broader scope, this class of men forming but a small part of the students, the object of the university of today being, first, to give men a broad, general education, and, second, to highly specialize.

Mr. Gilman, formerly president of Johns Hopkins University, in his remarks brought out the fact that all modern thought, in art, in science and in literature is being subjected to scientific principles and becoming more accurate. Gen. Black of the civil service commission spoke for the college of the west, and said he regretted that the non-sectarian colleges were supplanting those which formerly included religious instruction. Mr. Chapman, another guest of the evening, who represented the Civil Service Reform League, spoke of the work of that association.

Mr. Totten, when asked to speak for the University Club, outlined the work already accomplished by the preliminary committees and said the prospects were very promising, over 700 applications for membership having already been received. It was the ambition, he said, of the originators of the club to found a national uni-

versity club having a high standard of admission and including not only members in this city, but university men of the right stamp from all parts of the country. It was hoped a building could shortly be erected that would furnish headquarters for all the alumni associations of the city and a home for university men.

Dr. Glazebrook, in behalf of the University of Virginia, said this university had made several real gifts to Columbia in the way of instructors. Professor Thos. Price, Professor John Bassett Moore and Professor Wm. P. Trent, all University of Virginia men, were afterward professors at Columbia. "The University of Virginia as founded by Thomas Jefferson," said the speaker, "stood from the very first for true university life. Jefferson considered the organization of the university and the signing of the Declaration of Independence as by far the two greatest acts of his life."

The members of the association, most of whom were present, are as follows: Edward Chester Barnard, David Henry Baldwin, Dr. Marcus Benjamin, William Thompson Clerk, Harry Wilton Cragin, John Cropper, Edward Moorehouse Douglas, Allen Wade Dow, William Dudley Foulke, Albert Kenrick Fisher, M.D., Charles Fuller, Larkin White Glazebrook, M.D., William Tudor Griswold, Dr. Harry Theodore Harding, William Richard Hillyer, Herman Hollerith, Archibald Hopkins, Isaac A. Hourwick, John Duer Irving, Maurice L. Jacobson, Dr. Samuel Spahr Laws, Dr. Thomas Sim Lee, Francis Ellington Leupp, Dr. Clinton Hart Merriam, Charles Paul Ernest Peugnet, Gracie King Richards, Arthur Carr Roberts, Rt. Rev. Henry Yates Satterlee, bishop of Washington, Robert Fitch Shepard, Gen. George Miller Sternberg, M.D., Elisha Sylvester Theall, George Oakley Totten, Jr., Max West, Bailey Willis, Herbert Michael Wilson, M. S. Stone, H. W. Weed, Dr. Arnold Hague, Mr. Justice Peckham, E. W. Cady, H. A. Dyer, O. E. Cromwell, A. Winter, Jr., Gonzalo de Quesada, Dr. J. F. Crowell.

Columbia College

The 150th year of Columbia's life has seen realized two hopes, oft expressed and sincerely worked for by the *Association of the Alumni of Columbia College;* South Field has become the property of the University, and the building of Hartley Hall, Columbia's first dormitory, will be commenced. The former of these two acquisitions has only been attained by the University assuming a large mortgage, which will greatly increase the annual burden of running expenses. These are now very much larger than the visible income, and must be met in some new way. Gifts to the University are generally for some particular and designated object and hence are not available for the general running expenses. To meet these constantly increasing annual expenses is a permanent source of worry to the Trustees. Of course it is needless to say the tuition fees received do not begin to provide sufficient annual income, and the student receives facilities and instruction for which he pays very much less than cost.

Having all these facts in mind and being desirous of doing something for their *alma mater* in commemoration of the 150th anniversary of the founding of the College, the standing committee of the Association of the Alumni of Columbia College, formulated a plan and appointed a committee from the graduates of the University at large, to found an Alumni Memorial Fund. This fund is to be created by individual subscriptions given annually, in recognition of the fact that the education which the University gave cost more than the students paid for it, and that these students when graduated and established in life, ought to repay some part of the debt thus contracted. Only small subscriptions are invited, of five to ten dollars a year, and the continuation from year to year will be purely voluntary. To carry out this plan

there has been appointed in each class a treasurer, whose duty it will be to collect subscriptions and to furnish literature to the members of his class showing the plan in detail and describing its progress. The fund thus acquired will each year be handed over to the Trustees of the University for them to use in any way they may desire, and as income. By this method of small annual subscriptions, a yearly amount will become available, which will equal the income from a fairly large endowment fund, and yet not tax any one for a large contribution. If this plan inaugurated by the Association of the Alumni of Columbia College results in a substantial income being placed at the disposal of the University for running expenses, the Association will feel that in the year 1903–1904, it has fulfilled its object, as expressed in its charter, because it knows that to assist Columbia University is "to promote the true interests, influence and efficiency of Columbia College."

School of Law

An *Alumni Association of Columbia Law School* was formed by the first class which was graduated from the School—that of 1860. This Association, although never formally dissolved, ceased to be active about 1872, and for thirty years the School was without an organized graduate body. Late in 1902 a reorganization was effected, and steps were taken to bring before the alumni the desirability of making the Association an active force, to the common advantage of the School, the University, and themselves. Much interest was aroused, and the present membership is considerably above three hundred, including many of the most prominent members of the judiciary and bar.

The first general meeting of the Association was held in November, 1903, when a constitution was adopted and other business transacted. An informal supper followed, at which addresses were made by the president, Judge E. H. Lacombe, Messrs. Adrian H. Joline, '72, Edmund Wetmore, '63, Howard Mansfield, '74, Dean Kirchwey and President Butler.

During the past spring a course of public lectures, on "Professional opportunities of the lawyer," has been given at the University under the Association's auspices. The subjects and speakers are given under the School of Law notes in this issue.

A committee, headed by Lucius H. Beers, Esq., of 51 Wall Street, is now at work upon a plan for giving systematic aid and advice to graduates of the Law School in obtaining positions, and also to lawyers in finding men qualified to fill vacancies in their offices.

Membership in the Association is elective. All graduates of the School, and non-graduates who have studied there a year or more, are eligible. The dues, at present, are two dollars a year.

Long Island, P. & S.

The *Long Island Alumni Association of the College of Physicians and Surgeons of Columbia University* was organized in the year 1896, at the old Kings County Medical Building, Bridge Street, Brooklyn. Its first officers were: President, Charles Jewett, M.D.; secretary, Calvin F. Barber, M.D. The Association held its eighth annual meeting and dinner at the Assembly, Pierrepont Street, Brooklyn, November 23, 1903, the following officers being elected: President, Albert M. Judd, M.D.; treasurer, J. Cochran, M.D.; secretary, Wm. C. Woolsey, M.D.; trustees, Doctors Ostrander, Rushmore and Hancock. Professor Blake of the College was the guest of the evening and spoke on

"The College as it is today." Dr. James P. Warbasse followed on "Medicine—its relation to the progress of civilization." Doctors Corcoran and Ostrander also made addresses. Forty-one members and two guests were present, and much enthusiasm was shown for the University and the Medical School.

School of Medicine

The *Association of the Alumni of the College of Physicians and Surgeons* (New York) was organized April, 1859, and incorporated May 12, 1873. It has for its objects: The collection of funds by contribution and subscription, and the holding, investment and application of the same for the establishment and endowment of professorships and fellowships, the creation of prize funds, the establishment and equipment of laboratories, the erection and equipment of suitable buildings for the same, and for the purpose of buying, holding and hiring, or leasing property for any and such other purposes of medical and scientific investigation and instruction, in connection and cooperation with the Trustees of the University. The Association maintains three fellowships of the value of $500 each, and the privileges of the college laboratories. The Association assists in paying the cost of the publication of the reports of the Fellows and other original workers in the college laboratories. This year is offered the Alumni Prize of $500 for the best essay, involving original work, on any subject pertaining to medicine or surgery.

The bequest of the late Benj. Cartwright of Newark, New Jersey, enables the Association to offer a prize of $500, known as the Cartwright Prize, which is open to universal competition and is under the same conditions as the Alumni Prize, alternating yearly with it. The bequest also provides for a series of three lectures to be known as the Cartwright Lectures, which are given biannually.

The officers at present are: President, W. P. Northrup, '78; vice-president, R. G. Freeman, '86; treasurer, G. C. Freeborn, '73; secretary, H. E. Hale, Jr., '96; assistant secretary, A. V. Moschowitz, '91.

Class of 1881, College

On the evening of February 25, the Class of '81, College, held its twenty-seventh annual dinner at the Columbia Club. The president, Hon. Charles M. Lum, of Chatham, N. J., was at the head of the table, and Dr. R. H. Sayre was master of ceremonies. Fifteen men were present in the flesh and some fifty in the spirit.

Class of 1888, College

The usual reunion was held on the afternoon of Commencement Day in Room 305, College Hall; and among those present was Harry Ely, who had come east for a visit from his home at Redlands, California, for the first time in several years. On the evening of March 8 came the twentieth annual dinner, which for the first time was held at the Columbia Club. The dinner committee had provided an excellent menu and the men turned out in large numbers. There were no formal speeches according to the established custom of the class, but the meeting was characterized by the usual spirit of good fellowship and of strong class loyalty. The evening was in every respect one of the most pleasant and the most successful which the members of the class have passed together since graduation.—The ranks of the married men have been increased by the addition of Woodward, who was married in Paris in September, 1903.—To the children of the class

three have been added during the past year. Percy Hall and Merriam have each had a daughter, while a son has been added to Goeller's family.—Baldwin will return temporarily to his *alma mater*, as he is to offer two courses at the Summer Session this year.

Class of 1895, College

Guy Wetmore Carryl, the noted novelist, short-story writer and poet, died on March 31 in Roosevelt Hospital after a lingering illness. Death was due to blood poisoning caused by rheumatic grip. Mr. Carryl was born in this city on March 4, 1873, and was a member of the Class of '95. He was a member of the Psi Upsilon Fraternity, was prominent in many branches of student activity and in his senior year was editor-in-chief of *Spectator*. Upon his graduation he entered upon a journalistic career and first attracted general attention by joining the editorial staff of *Munsey's Magazine*. From 1898 to 1899 he was foreign correspondent to several of the most prominent literary publications and journals of the city. Perhaps the most popular and widely read book is his collection of short-stories published under the title of "Zut and other Parisians." Among his books were "Fables for the frivolous," "Mother Goose for the grown ups," "Grimm tales made gay," "The Lieutenant-Governor," and "The will of Andrew Vane." His home was at Swampscott, Mass. His bungalow there, which he had named "Shingle blessedness," was recently destroyed by fire. The exposure incident to the fire brought on the illness that resulted in his death.

Class of 1896, College

The class of 1896 holds four or five reunions each year, and the attempt is being made to have both College and Science men attend. The class has lost by death since it entered college the following members: Armitage Bradley, Frederick S. Gibson, Howard C. Kretz, Robert G. McCrea, Isidorus Ross, Manfred Uhl, and William W. Willis. Information blanks were recently sent to all members of the class, but eleven men failed to reply: E. W. Armstrong, Burr, Coudert, Cherry, Joseph, Ketcham, Kroeber, Lesley, Melwitzky, Peters, and Smith. Extracts from the replies of the remainder will appear in an early number of the QUARTERLY.

Class of 1899, College

The third reunion of the class of 1899 for the present season was the fourth annual Christmas reunion and was held on Tuesday evening, December 29, 1903, at Muschenheim's Arena. A beefsteak dinner was served to the twenty-two members of the class who were present: Pell, Ropes, Cardozo, Moffatt, Hopkins, Ernst, Senftner, Cole, McCann, Eldert, Baker, Marcus, Tuttle, Josephthal, Simpson, Hackett, Lichtenstein, Matthew, Fort, Staunton, Weil, and Ehret.

At the conclusion of the dinner, a class meeting was held. It was decided to hold the quintennial reunion of the class on the afternoon and evening of Commencement Day, June 8, 1904, and the committee for the "quintennial" was authorized to make all proper plans for the occasion. It is proposed to have the members meet at the alumni luncheon; and then adjourn to College Hall, where a '99 punch will be served. Other attractive features are also contemplated. In the evening the quintennial banquet will be held, after which '99 will adjourn to the '94 *Kneipe*.

The class also appointed a committee for the publication of a Class Book to commemorate its fifth anni-

versary since graduation. Ernst, Hackett, Cardozo, G. Parsons and Bradley were chosen to serve thereon. Each member of the class has been requested to write a letter stating what he has done since graduation, his present occupation, and any interesting incidents that have happened. The book will also include greetings from President Butler, and Dean Van Amringe, a record of all the reunions of the class, an account of the class memorial fund, a class poem, and an obituary of the two members of the class who have died since graduation.

The following summary of the reunions of the class has been compiled:

Year	Number of Reunions	Average Attendance Each Year
1899–1900	4	23
1900–1901	7	17
1901–1902	5	19
1902–1903	4	23
1903–1904 (incomplete)	4	18
Total	24	20

One or two items of personal mention are of interest. Fowler has forsaken the Produce Exchange and is now with Rogers Brown & Co. in the coke business. Wormser is with the Rapid Transit Subway Construction Company. Baker and Tuttle coached the Columbia debating team in its contest against Cornell. Kellogg is travelling in Europe; and Cardozo recently spoke before the New Law Club on the "New spirit in the Law School."

Class of 1901, College

The annual midwinter reunion of the class of 1901, College, was held Thursday evening, January 21, at the Arena, when nineteen members of the class took dinner together and afterwards listened to some very enjoyable speeches from the lips of the other eighteen, for the toast-list included every man present. The favored and faithful few, most of whom are always present at reunions of the class, were Brower, Mitchell, Meyer, Shepard, Shoemaker, Gulick, Ringer, White, Sheerin, Gray, Ernst, Havey, Van Cise, Cardozo, Lederer, Woolf, de Beaumont, Corn, and Durham. Altogether the evening was delightfully spent. The class decided to hold in the future only two reunions each year in place of three—one at some football game, with a dinner following; the other at Commencement.

Class of 1902, College

The class of 1902 held its last reunion at the Columbia-Amherst football game last fall and expects to hold its annual meeting at Commencement. A large number of the class are still studying. Bancroft, Ford and Winslow are at the General Theological Seminary; Gookin is at the Cambridge Episcopal Seminary, while Iglehart and Nesbit are at Drew. All hope to be parsons in time. Of future lawyers there are, at the Columbia Law School, Bradley, Budington, Carter, Cowen, Dana, Halstead, A. G. Hays, Hincks, La Roche, Le Fevre, Lewy, Mahan, Rose, St. John, Schuster, Seligsberg, Spencer, Strebeigh, Tinker and Wiley; at the New York Law School, G. C. Atkins, Fisk, Keeley and A. D. Weekes. A somewhat smaller number are studying medicine. Hopkins is at the Johns Hopkins Medical School; Bartow, Colie, Collins, Gerster, Haberman, A. M. Hays, Holland and Lieb are at Physicians and Surgeons. Haas is hunting for a Ph.D. at Columbia and teaching Latin at the College of the City of New York. Parr and West have decided to become engineers and are enrolled in the School of Mines. As

far as is known, Meeks has the proud distinction of being the first father in the class; Danton is teaching at Harvard, Huntting at California, Caldwell at Columbia and F. M. Clark is tutoring. Burk Jenkins when last heard from was out West ranching; Carey is with Houghton, Mifflin & Co.; Myers is secretary of the Committee on Employment for Students at Columbia; Wall Street claims Pell, Spence, Shoemaker, Waters and Willis. Lyman Rhoades is assistant secretary of the Equitable Life Assurance Co., Stratford is a member of the Geo. Stratford Oakum Co., and Geo. Middleton is writing plays. Wilson has succeeded in winning the Proudfit Fellowship at Columbia and took the degree of A.M. at Harvard last year. The rest of the class are in business.

Class of 1903, College

Of about 100 members of the class of 1903, over sixty per cent. are still studying this year. About sixty of these are in the University. Of those in the University, the Law School has the largest number, nearly thirty. Among them are: Agate, W. F. Allen, Ansorge, Asch, Beekman, Butler, Frank, Fuld, Haas, Harrison, Hendrickson, Heyman, Isaacs, Moses, O'Loughlin, Riggs, Schroeder, Strasser, Sutton, Telsey, von Bernuth, Wallstein, and Wyatt. Among those taking scientific courses are: Colie, Hoffmann, Loveman, Seil, Shields, Thoman, Toussaint, Turnbull, von Scholly, and Werner. Bechert, Davis, Koenig, Lawson, Shoenfeld, Steeves, Taylor, Tintner, Tomkies, and Wells are registered under the faculty of Philosophy. In the College of Physicians and Surgeons are T. H. Allen, Bass, Casamajor, Mandelbaum, and Schulman. Crowell and Schuyler take Political Science. Kahn is studying architecture. About fifteen of the class are in business: Abbott, importing; Bartholomew, freight brokerage; Briggs; Brinckerhoff, law office; Comstock, publishing; Dodge, M. Hartley Co.; Earle, real estate; Elias, stock brokerage; Iselin; Keeler, advertising; Lefferts; McLintock; H. R. Odell, Central Hudson Steamboat Co.; Schramm, coffee importing; Spiegelberg, importing; Townsend; Waddell; Wolf, banking. Bambach and Thomas are studying theology; one at the General, the other at the Cambridge, Mass., Seminary. Fink and Ridder are at Heidelberg University. Lindsley is teaching science in the Columbia Grammar School; L. S. Odell, Mathematics in the Horace Mann High School; Swenson, Mathematics in Columbia University. Egner and McCollom are at the New York Law School; the latter is also taking postgraduate work at Columbia.

NOTICE

Two large gifts were announced by the President at the May meeting of the Trustees. The first was a gift of $60,000 from Horace W. Carpentier of the class of 1848, for the support of a chair in the College of Physicians and Surgeons. The Trustees voted to apply the income of this fund to the support of the chair of Pediatrics, and in recognition of the gift they named the chair, the incumbent of which is Dr. L. Emmett Holt, the Carpentier Professorship of Pediatrics.

The second gift was from an anonymous donor, of an amount sufficient to enable the Trustees to establish a new professorship of philosophy. The Trustees voted to appoint to the chair John Dewey, Ph. D., head professor of the Department of Philosophy in the University of Chicago since its foundation.

Alumni Associations

ASSOCIATION OF THE ALUMNI OF COLUMBIA COLLEGE

All graduates of the College may become members upon signing the roll and paying one year's dues. Annual dues, $5; for graduates of less than five years' standing, $2. Life membership fee, $50. Former students whose classes have graduated, and graduates of other Schools may become Associate Members upon the same terms, upon being elected by the Standing Committee. The UNIVERSITY QUARTERLY is sent to all members of the Association without additional charge.

WILLIAM B. SYMMES, JR., *Secretary*,
52 Broadway.

ALUMNI ASSOCIATION OF THE COLLEGE OF PHYSICIANS AND SURGEONS

All graduates of the College of Physicians and Surgeons may become members upon notifying the Secretary and paying one year's dues. Annual dues, $3. The UNIVERSITY QUARTERLY is sent to all members of the Association without additional charge.

H. E. HALE, JR., *Secretary*,
150 West 59th Street.

ALUMNI ASSOCIATION OF THE SCHOOLS OF SCIENCE

All graduates of the Schools of Science are eligible to election. Former students whose classes have graduated may be elected Associate Members. Annual dues, $3.

R. E. MAYER, *Secretary*,
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